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The Newspaper of the Industry

# Air Conditioning & REFRIGERATION

Reentered as second-class matter October 2, 1936 at the post office at Detroit, Michigan, under the Act of March 3, 1879.  
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**NEWS**  
Technical Governmental

FEB 16 1944

'Written To Be Read on Arrival'

Issued Every Monday  
at Detroit, Michigan

FEB. 14, 1944

Vol. 41, No. 7, Serial No. 778  
Established 1926.

## Inside Dope

By George F. Taubeneck

'Leave Things As They Were,' Say Soldiers  
Jackson's Topper  
Here's An Answer for Which We've Been Waiting  
Our Private War Correspondents  
Lieut. Bob Nixon Reports  
Lieut. Jack Adams Reports  
Sgt. Jim McCallum Reports  
Grantisms

### 'Leave Things As They Were,' Say Soldiers

Lee Clark, Ray Cosgrove, George Jones, Jim Nance, Alfred Sloan, and other realistic executives—all of whom have been trying to disillusion gullible folk who expect postwar products to be pipedream models with built-in rockets, radar, and an attachment for printing five-dollar bills—will be pleased by this item.

"Yank," the Army's private newspaper, recently published a lyric poem written by a sergeant in the Mediterranean theater. His thesis was an insistence that soldiers want to find home just like they left it, rather than loaded with a madhouse of gadgets and governments dreamed up by opium smokers and snowbirds.

Title of his lyric has the perfect rhythm and swing of one of those deathless songtitles. It is: "Please Don't Streamline Mother While I'm Gone."

### Jackson's Topper

H. C. L. Jackson, our favorite casual columnist, recently topped all soldier jokes yet heard in this war (to our way of thinking) with the following:

In an American cantonment the mess hall recently was decorated with posters emblazoned with the slogan: "Food Will Win the War."

Underneath one of these slogans some G. I. Joe had crayoned: "Yes, but how can we get the enemy to eat here?"

### Here's An Answer for Which We've Been Waiting

During the last three years the NEWS must have received at least a hundred letters from subscribers expressing bewilderment over the following dilemma: the armed forces admit that they are desperately short of refrigeration mechanics and are training them by hundreds in specially set-up schools, yet nearly every refrigeration mechanic inducted gets assigned to something else.

Well, an old acquaintance of ours—an expert refrigeration engineer, has written us the answers. His sense of humor is so apt and direct that we're sure you'll all enjoy reading his story. (He wants to remain anonymous).

"As you may or may not have heard," he begins, "I was the recipient of 'Greetings' from my neighbors last July. I will be frank to admit that I went off to the army with high hopes of all that could be accomplished to help out the war getting over with. Between that time and the present I have had the pleasure of being inducted, received, classified, clothed, fed, shipped to a training camp, and now I am home on a furlough for a few days, after completing my training."

"Among other things I have done on my vacation, is to sit down and look over quite a number of issues of the NEWS. I will assure you that I have had quite a bit of amusement in reading about the manpower problem particularly in view of what

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## Whirling Shelves Kiddies' Delight Says Critic of Round Refrigerator

Engineer Reviews Possible Postwar Design Changes

By C. Dale Mericle

DETROIT — The postwar household refrigerator will be bigger, but it won't be circular, declared Glenn Muffy, well known consulting engineer of Springfield, Ohio, who addressed the Detroit Section of American Society of Refrigerating Engineers Monday, Feb. 7, at the Rackham Foundation here. George B. Bright was chairman of the meeting.

Discussing "Household Refrigeration—the Cabinet of the Future," Mr. Muffy pointed out that the circular type cabinet which has captured the public's imagination has certain inherent disadvantages not readily apparent on paper, to the consumer.

The trend in household cabinet design is toward the inclusion of adequate frozen food storage space and additional convenience features rather than any radical design change, he stated.

Biggest selling box in the postwar will be the 8 cu. ft. cabinet, whereas just before the war the 7-foot box was the leader, having replaced the 6-foot unit in popularity, Mr. Muffy said. And the postwar 8-foot box will have a 1 or 2 cu. ft. frozen food storage compartment, he added. All

models will probably be deeper and not so wide, he predicted.

Illustrating his talk with old patent drawings and photographs, Mr. Muffy demonstrated that some of the "new" ideas for refrigerators were patented many years ago.

"Just as an example," he stated, "30 years ago an ice-cooled circular refrigerator was produced in Jackson, Mich. under the trade name of 'Jack Frost.'

"There are at least four disadvantages, from the user's viewpoint, in a circular cabinet," Mr. Muffy continued. "For one thing, most designs call for a center post around which the circular shelves revolve. This center post will prevent placing a large platter of food on a shelf. Besides, you can't put as many round dishes on a round shelf as on a square or rectangular shelf," he pointed out.

"Then, too, how does the housewife clean a circular shelf?" he asked. "It can't be removed from the refrigerator. In addition there is a tendency for tall bottles to tip over as the shelf is revolved. And one major point against the revolving circular

(Concluded on Page 29, Column 3)

## N.E.W.A. Seeks To Enroll Wholesalers Of Appliances

NEW YORK CITY—The committee of the National Electrical Wholesalers Assn. charged with the responsibility of creating a special plan for inviting and admitting to membership in N.E.W.A. wholesalers who distribute for resale refrigerators and other electrical refrigeration equipment, electric heating and cooking units, all socket appliances, including radios and phonographs, etc., and all electric farm equipment, announces a special plan for appliance and radio wholesalers.

Such prospective members will be admitted for the present as "Special Members." The idea is to get as many such members as possible to join now—and before April 19-22, 1944, which are the dates of N.E.W.A.'s thirty-sixth annual convention and Second War Conference to be held at the Stevens, Chicago, so that they may be represented there in force and attend the special meetings with special programs arranged just for them.

One item on the agenda for the Chicago convention will be the creation of a special Electrical Appliance Distributors division, which will deal with problems peculiar to that branch of the electrical wholesaling industry. It is planned that representation on the executive committee of N.E.W.A. will come from the appliance division as well.

N.E.W.A.'s headquarters are at 500 Fifth Ave., New York.

## 'Sparton' Refrigerators Planned After War

JACKSON, Mich.—Sparks Withington Co. here is said to have announced to its stockholders that it is planning to again manufacture household electric refrigerators after the war.

The company discontinued the production and sale of its "Sparton" line of refrigerators sometime before the war broke out. In addition to manufacturing refrigerators, Sparks Withington is said to be contemplating the manufacture of a line of washing machines under its own name.

## Service Training Is Possible In Smaller Communities Also

CLEVELAND—Small communities can participate in the training program for refrigeration servicemen without forming Local Councils or following exactly the Program Statement of the National Refrigeration Manpower and Training Program, it was stated last week by W. Ray Kromer, national director of training.

Vocational training is extended through any public school through the State Office of Education, Mr. Kromer explained. By grouping together the training needs of all the servicemen in one area, or of all the contractors from several small communities in one general locality, a schooling program can be launched.

In one instance, small towns within a radius of 40 miles have been contacted, and one or two trainees from each town have been selected. The town in the center of this area has arranged with the State Director of Vocational Training for courses to be held in the Consolidated high school. The trainees meet at this central point for their classes until the program is completed.

Instructors have been selected from among the servicemen in the area, and are being paid by the State Department through the local school. Those in small communities who wish to participate in the training program should contact Mr. Kromer at 1835 E. 24th St., Cleveland.

## Whiteside Seeks WPB Change For Civilians

WASHINGTON, D. C.—Greater weight to civilian requirements should be given by re-organizing the War Production Board to set up two vice chairmen of equal authority, one in charge of civilian requirements and the other chief of war requirements, believes Arthur D. Whiteside, who is retiring as head of OCR.

Mr. Whiteside asks that these two vice chairmen work closely with Charles E. Wilson, executive vice chairman, in allocating materials and manpower, with essential war needs naturally receiving first consideration.

## Detroit Appliance Repairmen Fight 'Gyp' Charge, Agree To Pool Calls

### Contractors To Transfer Calls Between Zones To Save Tires, Time

DETROIT—"Pooling agreements" under which calls for service work are transferred among firms who are party to the agreement have been entered into by a substantial part of the memberships of the Refrigeration Contractors Assn. of Detroit and the Electrical Appliance Service Assn. Purpose is to help the war effort by saving gasoline, tires, and man hours.

The "pooling agreements" have been submitted to ODT and WPB officials in Washington for official approval, according to Raymond Shock, executive secretary of both associations.

Parties to the agreement agree to pool their deliveries, transfer calls from one to another, and to pool their pickup of parts at the wholesale houses.

The metropolitan area is divided up into a number of zones, and the parties to the agreement are furnished a list of all members of the pool with the zones in which they are located, and transfer of calls is to be made from one zone to another in a manner designed to effect the greatest saving of car mileage and time.

An exception is made for servicemen taking care of guarantees on a contract basis who are obliged to drive into zones other than their own for the purpose of performing services.

Those party to the agreement also eliminate the use of their trucks or service cars in making free estimates.

Following is the general outline of the Pooling Agreement of the Refrigeration Contractors Assn. of Detroit:

WHEREAS, the said parties hereto are now engaged in the general refrigeration and air conditioning service business in the City of Detroit, operating under Government License P126 and also under license issued by the City of Detroit.

WHEREAS, during the early part of 1943, a survey was made of the refrigeration and air conditioning service business for the district of Detroit, under the guidance of the War Production Board and for Donald M. Longman, Chief Distribution Branch, Office of Civilian Supply, Washington, D. C., and

WHEREAS, it was determined by said survey that 42 companies operate

(Concluded on Page 29, Column 1)

### Association Moves To Get Public 'Straight' On Shops' Problems

DETROIT—Organized groups of electrical appliance repair firms here are taking steps to counteract the unfavorable publicity brought down on them by an "expose" in Detroit newspapers of so-called "gyp" operators who allegedly charge exorbitant prices and then hold the appliance in their shop until the charges are paid.

Only a very few firms were involved in the newspaper stories and allegations of the Better Business Bureau, but the wide publicity given the matter put the whole local appliance service field under indictment, so to speak.

Main complaint of the customers was that they permitted an appliance service firm to take an appliance into a shop with the impression that a free estimate on the cost of a repair job would be given, but that sometime later when they made inquiry about it, they were informed that the work had been done, and were presented with a bill for it, often a large charge for a complete overhaul job.

The Electrical Appliance Service Assn. of Detroit took some immediate steps to counteract the unfavorable publicity and to maintain the public's faith in the reliable operator.

One of the first moves was to run an advertisement in a local newspaper, which said in part:

"We, as an Association, assure you that every member will carry out his guarantee to you and stand ready to adjust any legitimate complaint which you might have against any of our members. For any complaint which you might have or

(Concluded on Page 2, Column 1)

## N.R.S.J.A. Announces Annual Award Plan

CHICAGO—The National Refrigeration Supply Jobbers Assn. announces the establishment of an annual award to be presented each year to the manufacturer of refrigeration parts and supplies whose policies, product-quality and promotion are considered most outstanding.

Members of N.R.S.J.A. are now casting their ballots to determine the company to receive the Trophy for the year 1943.

It is planned to announce the name of the winner and present the award in connection with the annual spring convention of the association

(Concluded on Page 2, Column 5)

## Gov't May Continue Its Surplus Disposal Plan

WASHINGTON, D. C.—That the government may perpetuate the present method of disposing surplus goods, considered by many to be quite inefficient, was considered possible after a Senate committee recently reported favorably on surplus war property disposal bill, H.R. 2759, exactly opposite to that urged by business and conservative Republicans and Democrats.

According to the recommended bill, the president and the directors of the Budget and Procurement would have final disposition powers, as is the case now under an executive order claimed by some to be of doubtful legality.

## Detroit Appliance Servicemen Battle 'Bad' Publicity With Plan To Tell Problems To Public

(Continued from Page 1, Column 5) ♦ service which you might desire we would be glad to take your call and refer same to our member located in your vicinity."

Raymond Shock, executive secretary of the Association, says that while it is true that some firms (not members of the Association, as no complaint was lodged against a member of the Association) were probably high-handed in their methods and exorbitant in their charges, that part of the question revolved around the public's failure to understand the difficulties under which appliance service firms operate today.

### PUBLIC IGNORANT OF PROBLEMS'

"We've had some response to our advertisement but the calls we get are about some minor matters—chiefly that the service firm has refused to make a free estimate of repair charges, or that there has been too long a delay in getting the appliance back," Mr. Shock said.

"The complaint about not getting free estimates shows how ignorant and unfeeling the public is of the repair shop's problems," Mr. Shock declared.

"Soon after gas rationing became effective the service shops made a general rule not to use their vehicles to go out on free estimates. The 'pooling agreements' entered into a short time ago make it binding that

### Advertisement Asks Complainants To Call



trips not be made to make free estimates.

"Furthermore, there is little point in a customer for a repair job trying to 'shop around' for a price today because the OPA ceilings keep them pretty well in line.

"Most of the cases involving a delay in having the appliance returned are ones in which a motor needs repair. All motor repair jobs take a great deal of time these

days, and in many cases a motor re-wind job may take six weeks.

"Users today are not treating their appliances very intelligently. They run 'em into the ground, so to speak, and when they reach the repair shop they are about ready for the junk heap, and nothing more. Is it any wonder then that in some cases the repair charges are nearly as much as the appliance cost originally?"

### USER EDUCATION PLANNED

An effort will be made to work out a plan to promote education among users on proper care of appliances, and also to inform them to get their appliances repaired before they fall apart. It is also being planned to take newspaper and Better Business Bureau representatives on a tour of appliance repair shops to let them see the condition of the appliances turned in for the repair, and the amount of the work load that the shops are attempting to handle with reduced manpower.

"As a further safeguard against complaints or misunderstandings on the matter of estimates," said Mr. Shock, "we are recommending the use of a standard order form, which will be signed by the customer before any work is started on his appliance. The customer will keep a copy of the form, which gives the shop the authority to make the necessary repairs."

## To Head Up a Division of Perfex Corp.



Paul B. Reed has just been named manager of the refrigeration and air conditioning division of Perfex Corp. Formerly with Servel, Inc., he is the author of the "Army Refrigeration Problems" series of articles in Air Conditioning & Refrigeration News.

## P. Reed Named Perfex Refrigeration Chief

MILWAUKEE — Paul B. Reed, formerly service manager of the Electrical Refrigeration and Air Conditioning Division of Servel, Inc., Evansville, Indiana has joined the Perfex Corp., of Milwaukee, manufacturers of Perfex controls, as manager of the refrigeration and air-conditioning division.

In his new work, Mr. Reed will correlate the engineering, production and sales of Perfex' new line of refrigeration controls and accessories, added to the Perfex line of general heating controls, stoker and oil burner controls, damper operators and other accessory devices.

In the 25 years since 1919 when Mr. Reed first entered the then infant electric refrigeration industry he has rubbed elbows with many refrigeration problems and will take this experience with him into the control field.

He will continue to act as Chairman of the Wartime Educational Committee of the Refrigeration Service Engineers Society and as a member of the National Refrigeration Service Manpower Committee. He will also continue the bi-monthly column "Army Refrigeration Problems" in Air Conditioning & Refrigeration News.

Temporarily his office will be in the Perfex engineering department building at 710 South Third St.

### William Vilter Dies At Age of 81

MILWAUKEE, Wis.—William O. Vilter, 81, president of the Vilter Mfg. Co. of this city, manufacturers of refrigeration and air conditioning equipment, died here Jan. 31 at Columbia hospital after a long illness.

A native of Germany, Mr. Vilter was nine years old when his family settled in Milwaukee. His father, Ernest Vilter, who began his business career in Milwaukee by distilling whisky under the firm name of Meiners & Vilter, joined with Peter Weisel in 1879 to form the Weisel & Vilter Co. William joined the firm in 1882 as a bookkeeper and became secretary four years later.

William assumed the additional title of treasurer in 1888 upon the death of his father. Five years later William, together with his brothers Emil and Theodore, bought out Weisel's interests in the firm and the name was changed to the Vilter Mfg. Co. Theodore became president and at his death was succeeded by Emil, who headed the company until 1934, when he was elected chairman of the board and William was named president and treasurer.

He leaves his wife, the former Elfriede Best, a daughter of Emil Best of the Pabst Brewing Co., whom he married in 1910, and a son, William B. Vilter, director of personnel.

## Goods Shortage Doesn't Permit Lease-Breaking, State Court Rules

ROCHESTER, N. Y.—A N. Y. Supreme Court ruling holds valid a judgment entered against a dealership here that had vacated its premises 10 months before the expiration of a lease, the defense having been that government restrictions prevented the dealer from continuing in its business of distributing electrical appliances.

The landlord had sued for the rent and the defense contended that the Federal government, through rationing regulations, had prohibited the sale of refrigerators and other appliances.

The court declared that while there were regulations that restricted the sale of such items, they did not wholly prohibit the firm from conducting its business.

### N.R.S.J.A. Award For Manufacturers



Three-time winner of the award will get the cup permanently.

### Jobber Association To Give Award Annually

(Continued from Page 1, Column 5) which will be held this year at the Stevens hotel in Chicago, April 25 and 26.

The trophy itself is in the form of a beautiful sterling silver loving cup appropriately engraved, designed and fashioned by Crichton of London. It is 16 inches high. The trophy will be awarded each year to the company selected by the membership of N.R.S.J.A. and when the same company has received the award for the third time the trophy will remain in their possession permanently.

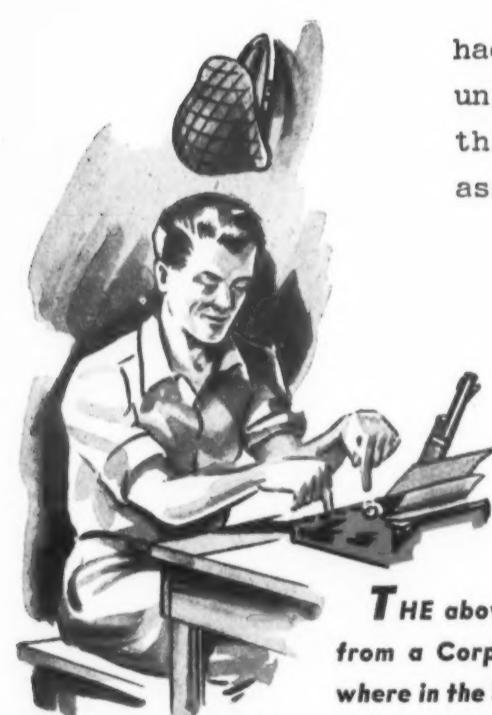
Object of the award is to stimulate the interest of manufacturers in the type of distribution obtainable through refrigeration supply jobbers.

Your refrigeration parts and supply house in Central New York and Northern Pennsylvania

**TED GLOU**  
**CENTRAL SERVICE SUPPLY CO.**

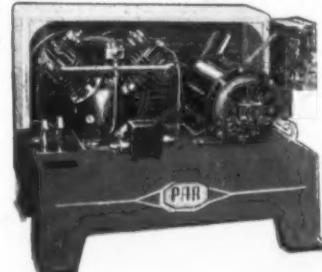
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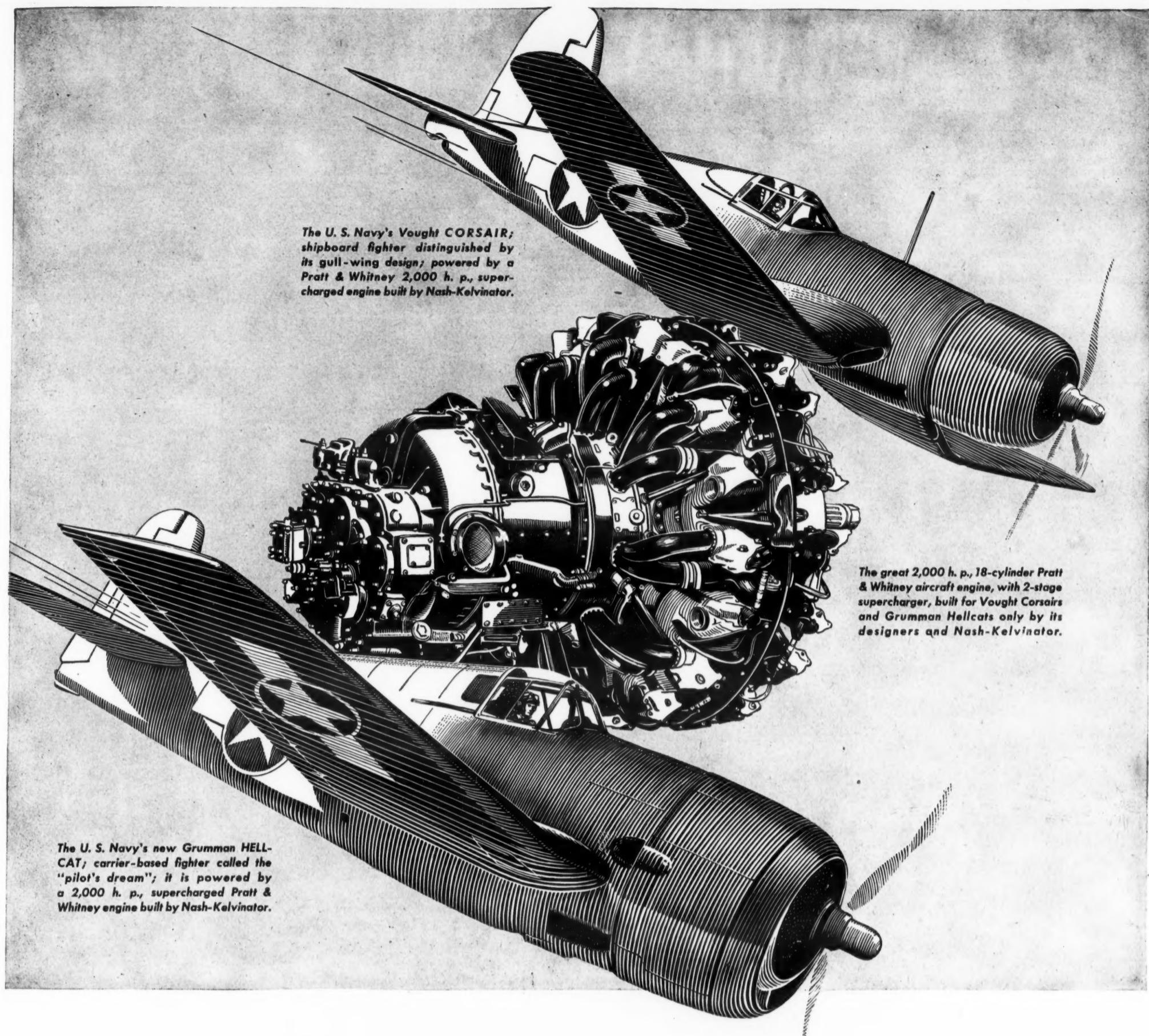
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THE above is an excerpt from a letter received from a Corporal in the U. S. Marine Corps, somewhere in the South Pacific.... And we thank God that we are able to provide Par Condensing Units to properly preserve the food for our Marines on all parts of the globe.

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## "DOUBLE Trouble" for the Axis . . .

Here are the U. S. Navy's Vought *Corsair* and Grumman *Hellcat* . . . two of the fastest, finest, toughest carrier-based fighter planes in the air today!

Detailed performance and design features of the *Corsair* and the *Hellcat* are Navy secrets, but . . . both planes have speeds in excess of 400 m.p.h. . . both can fight at altitudes more than 7 miles above sea level . . .

*And both are powered by 2,000 h.p.*

*supercharged 18-cylinder Pratt & Whitney engines built in our plants!*

It is no accident that these sleek bullets—breaking the back of Japanese air power in the Pacific with combat scores of 6-to-1, 8-to-1, 30-to-0—are powered by engines built in Nash-Kelvinator factories.

For the men and women of Nash-Kelvinator have long been proud of their craftsmanship and their ability to build products of high precision in quantity.

It is this precision craftsmanship . . . this ability to build the finest in quantity—whether it be famous Kelvinator refrigerators and electric ranges in peacetime or great aircraft engines in wartime—that makes certain, when peace comes, there will be a great new line of Kelvinator Refrigerators and Electric Ranges!



*The men and women of the Propeller Division of Nash-Kelvinator Corporation have been awarded, and proudly fly and wear, the famous Army-Navy "E" for High Achievement in War Production.*

**Look AHEAD WITH KELVINATOR**

DIVISION OF NASH-KELVINATOR CORPORATION  
Kenosha • Milwaukee • DETROIT • Grand Rapids • Lansing

## Minneapolis-St. Paul Contractors Establish Council To Handle Training, Other Problems

**Trainees Get Half-Day In School, Half-Day In Shop**

**MINNEAPOLIS-ST. PAUL** — The War-Time Refrigeration Council of the Twin Cities has been formed in the Minneapolis-St. Paul area to follow through locally on the National Refrigeration Manpower and Training Program.

Officers and committees have been selected, a constitution has been adopted, and a recruiting and training program has been set up.

Recruits for training will be sought among discharged members of the armed forces, suitable 4-F's, and persons over 38 years of age who have a mechanical aptitude and a desire to get into refrigeration service work. An advertising and publicity program is planned to enlist such recruits.

Applicants will be filtered out in three ways; first, by providing the U. S. Employment Service with adequate specifications of what is desired, and by vocational testing; second, by an interview and application with the association; and third, by interview and acceptance by the prospective employer.

Recruits will be placed in a 4-hour-per-day training course at Dunwoody Institute (either mornings or afternoons, as the majority of members desire) for a period of about three months. They will be given a minimum of theory and a maximum of practical instruction in a course arranged and approved by the training committee. The first week will

be a probationary period.

For the other half-days during this training period these trainees will benefit from "on the job" experience with the firm that sponsored their training. They will be paid a subsistence wage during the training period.

(The Council of the Twin Cities has also prepared a letter covering the essential nature of the refrigeration service business, and the correct procedures for local Selective Service boards to follow, for use in the case of individual servicemen. The letter is published elsewhere in this issue.)

The following temporary officers have been named for the War-Time Refrigeration Council of the Twin Cities. President, A. M. Palen; vice president, Joe Parupsky; recording secretary, J. C. Ehlers; treasurer, T. H. Ingersoll. D. A. White is executive secretary. Trustees include U. P. Hanson; H. J. Sundgaard, and Ray Weise.

In adjoining columns is the constitution adopted by the Twin Cities Council.

### O'Donnell Buys Building

**SYRACUSE, N. Y.** — E. M. O'Donnell, a distributor of electrical appliances, has purchased the Best Garage at 324 W. Water St. here from Federal Deposit Insurance Corp.

## Constitution Adopted By Twin Cities Council

### CONSTITUTION, BY-LAWS AND REGULATIONS of the WARTIME REFRIGERATION COUNCIL OF THE TWIN CITIES

#### ARTICLE I—NAME

The name of this association shall be the Wartime Refrigeration Council of the Twin Cities.

#### ARTICLE II—PURPOSES

(1) To form an organization composed of representatives from firms directly or indirectly connected with the business of manufacturing, installing, maintaining, and servicing refrigeration and similar equipment vital to the public welfare and the war effort; and (2) to act in connection with the wartime problems of the industry in the interests of securing the public welfare and promoting the interests of the industry.

#### ARTICLE III—JURISDICTION—HEADQUARTERS

The activities of this association shall be geographically limited by the boundaries of the Twin City Metropolitan Area. The headquarters of the association shall be maintained at an office address designated by the Board of Trustees.

#### ARTICLE IV—MEMBERSHIP

Membership shall be limited to individuals, partnerships, and/or corporations regularly engaged in the business of installing, maintaining, and servicing of refrigeration and similar equipment, and as associate members those engaged in manufacturing or supplying materials, refrigerating units, parts, repair services or power and having an established place of business, and who shall have been elected to membership as required, and complied with the conditions and requirements of membership as provided for by the By-Laws. Associate members may be part of any committee without power to vote.

Members will be admitted upon approval of their applications by a meeting of members.

Only one representative from any one firm may vote or hold office; a member

may authorize a proxy to vote or act in his absence. All right, title, and interest of any member in, or to the property or assets of any description, of the association, shall cease upon termination of his membership.

#### ARTICLE V—DUES—APPLICATIONS

Annual dues shall be Twelve Dollars (\$12.00) payable in advance on or before Jan. 1 of each year. Action to collect dues unpaid as of that date shall be taken by the officers and Board of Trustees. Names of members whose dues remain delinquent as of May 1 each year shall be presented to the next following membership meeting for vote on dropping them from membership. Members shall be considered in good standing unless dropped from the rolls by vote of the members. Members so dropped may be readmitted, if favorably voted on by the membership, by payment of dues for the year delinquent as well as the current year. Applications for membership shall be in writing on the letterhead of the applicant, and shall be accompanied by check in full for the first year's dues.

#### ARTICLE VI—ADMINISTRATION, OFFICERS, AND TRUSTEES

General administration of association affairs, subject to directives from the Members Meetings, shall be lodged with the officers and board of trustees.

Officers shall be a President, Vice President, Secretary, and Treasurer who shall fulfill the usual duties of such offices. All business shall be transacted in the name of the association. The unexpired term of any officer, trustee, or committee member unable to serve may be filled by appointment by the President.

Monies received by the Treasurer may be disbursed only upon vouchers approved at a meeting of the Board of Trustees. Association checks shall be signed by the Treasurer, and/or the President, Vice President, or Secretary, two signatures being required one of which must be the Treasurer's.

The Board of Trustees shall consist of the officers named above, as elected by the Annual Meeting of the Membership, and in addition three Trustees elected at the same time. It shall meet on the call of the chairman on 24 hours notice, or at the request of any three members. Any four members shall constitute a quorum.

#### ARTICLE VII—ELECTIONS AND MEETINGS

Regular meetings shall be held monthly on a regular date if possible. Special meetings may be called by the President as conditions demand, or at the request of any five members. The annual meeting and election of officers and trustees shall be held in December. Notice of all meetings shall be mailed at least three days prior to the date of meeting. Fifteen members shall constitute a quorum at any members meeting except the annual meeting. A quorum at the annual meeting, including proxies shall consist of representatives from at least 50% of the members in good standing.

These articles may be amended at any meeting providing notice of and the wording of the proposed amendment has been sent to each member at least 10 days in advance of the date of meeting.

Officers and trustees for the ensuing years shall be elected at the Annual Meeting of Members in December. A nominating committee appointed by the President shall present a slate of candidates for all offices to the members assembled at that meeting. Nominations also will be received from the floor. Balloting shall be in secret and a simple majority of members present shall be required to elect.

#### ARTICLE VIII—COMMITTEES—EXECUTIVE SECRETARY OR COORDINATOR

Regular committees of the association shall consist of the following:

**Personnel and Training Committee** handles all matters concerned with the recruitment, training, upgrading, and retaining of needed servicemen, shop men, and other employees, and to make all contacts with government agencies, professional, or employee groups concerning personnel retention, recruitment, and training.

**Committee on Industry Economics** handles all matters affecting wages, prices, priorities, and other economic phases of the industry's program.

**Industry Promotion Committee** obtains new members and publicizes and promotes the association and/or industry among the trade and public locally.

**An Industry Coordinator, or Executive Secretary** may be appointed to facilitate the work of the association, if the Board of Trustees so determines. He shall serve under arrangements made by the Board, and any compensation he receives shall be subject to approval by the Board.

#### ARTICLE IX—ORDER OF BUSINESS—RULES—TERMINATION OF ASSOCIATION

Order of business at all Member and Board of Trustee meetings shall be as follows:

1. Roll call and determination of quorum.
2. Reading of minutes of previous meeting for approval or correction.
3. Reports or statements by officers and committees.
4. Consideration of applications.
5. Unfinished business.
6. New or miscellaneous business.
7. Adjournment.

Roberts Rules of Order shall govern procedures.

The association may be terminated and disbanded by a two-third vote by mail of all members in good standing following a motion to disband made and carried at any members meeting. A special meeting of the Board of Trustees to canvass the vote and ratify the action of the members shall be held, following which the officers shall liquidate all assets and divide same equally among the members in good standing as of the final date of liquidation; provided that any unpaid indebtedness shall be paid by assessment of such members if the assets are not sufficient to cover it.

## Eric Johnston to Address Washington Institute

**WASHINGTON, D. C.** — Electric Institute of Washington has announced that Eric Johnston, president of the United States Chamber of Commerce, will be the chief speaker at the institute's annual meeting to be held March 21 at the Hotel Statler here.

Mr. Johnston, who will discuss general conditions in the business world and the responsibilities which industry must assume in the postwar period, is currently spending most of his time traveling in this country and abroad to study current and future problems of business and industry.

Top officials of several war agencies and representatives of national electrical industry associations are expected to be present at the meeting.



**S**porlan CONTROLLED PERFORMANCE valves are the only thermostatic expansion valves with elements charged according to the application of the valve. The **selective charges** are designed to give the best operating characteristics for each class of installation. Only by using SPORLAN valves can you be assured of PEAK Performance on EVERY installation.

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GENERAL CONTROL'S K-15, two-wire, current failure, is a high pressure valve handling large capacities with minimum pressure drop. Main valve held open electrically minimizes pressure loss. Packless, available normally closed. Operates on a wide variety of fluids and gases.



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Boston • New York • Philadelphia  
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Wartime Manufacturers of Electro-Magnetic and Temperature Controls for Aircraft  
• Peacetime Producers of Automatic Pressure, Temperature, and Flow Controls

## Vinson 'Explains' That 2% Profit Level on Civilian Goods Applies Only To Textiles

### Dangers To Business Had Been Cited By Howard Blood

WASHINGTON — The Vinson directive of Nov. 16, 1943, placing absolute control over all phases of civilian goods production in the hands of WPB, OPA, and OES, has been re-stated in a release explicitly applying the directive to the manufacture only of textile and wearing apparel.

The directive as originally issued observed no limitation of emergency duration or of specific manufacturing industries, and aroused a storm of protest from manufacturers.

Under the tripartite control set up, the chairman of the War Production Board, the head of the Office of Price Administration, and the Director of Economic Stabilization together were authorized to decide exactly what production levels were desirable, what price figures would adjust manufacturing activity to those levels, and what profits might be allowed any manufacturer so governed.

#### WHAT PROFIT LEVEL MEANT

A 2% maximum gross profit level was established by the order, as computed before corporation taxes had been levied. This gross profit itself, however, might be less than 2% where WPB thought expedient.

The enforcement provision of the directive as interpreted originally authorized WPB to control all distribution of facilities, raw materials, or processed commodities.

Howard E. Blood, president of Norge Division of Borg-Warner, brought out the serious postwar implication of these terms in his address to the postwar planning session of the National Retail Furniture Association at Chicago in January.

If this had been a matter of military production control, he pointed out, no manufacturer would have resented it. Business had cheerfully accepted the principle of strict limitation of war profits and price control from the beginning.

#### BLOOD CITES INDUSTRY NEED

But industry after the war surely had the right to look forward to decent profits and, excepting the necessary regulations against monopoly and abuse, to unrestricted activity.

Production schedules during the transitional postwar period necessarily will be temporary and gradual, he predicted. That means constant changing, and therefore relatively high costs in working toward full production that will allow re-employment as fast as humanly possible, said the Norge executive.

Such a plan is possible only if certain fundamentals are realized and provided for, he stated. They include material freely available for consumer goods, labor free to accept employment in the production of these goods, and prices set by free competition, not by Government edict.

Also fundamental, he concluded, is a scale of business taxes that will

### HERE IT IS NEW WILL BE READY APRIL 15 CATALOG

ANNOUNCING NEW LINE  
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100% WHOLESALE  
REFRIGERATION  
HERMETIC REBUILDING  
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GENERAL ELECTRIC  
WESTINGHOUSE

### SERVICE PARTS CO.

2511 Lake St. Melrose Park, Ill.

#### VINSON MAKES A CORRECTION

The concerted blast against the terms of the Nov. 16 directive apparently was strong enough to blow down the door of the Office of Economic Stabilization, for Mr. Vinson's statement of Jan. 30 specifically qualified the original terms.

"The directive had been widely misunderstood," he said.

"It was intended, in the first place, to apply only to manufacturers producing essential civilian goods under mandatory orders of WPB designed to supply civilians with the basic minimum requirements during the mobilization for total war."

"It was intended furthermore to apply primarily, if not exclusively, to the field of basic textiles and apparel."

"It will in the future apply only to textiles and to apparel."

## WPB Authorizes Production of 400,000 New Aluminum Pressure Cookers By July 1

WASHINGTON, D. C.—Production by July 1 of 400,000 pressure cookers, made from aluminum instead of carbon steel, has been authorized by the War Production Board provided that their production won't interfere with any munitions work of the six firms given pressure cooker quotas by the WPB, according to Direction 1 to Limitation Order L-30-D issued Jan. 31.

If a manufacturer can't meet his quota of pressure cookers without interfering with war orders, WPB will cut the manufacturer's quota and shift the remainder to another firm with sufficient manpower and facilities, it was announced.

In 1943, 339,000 pressure cookers were produced from carbon steel. Aluminum has been prohibited for this use since Jan. 7, 1942, but WPB warns that it can give no assurance that aluminum will be available for 400,000 cookers scheduled this year.

Availability of permanent mold facilities will determine the production of cast aluminum type cookers, it was stated. Permission to produce permanent mold castings will not be given if such work will interfere with war orders.

Limited amounts of copper, tin for plating, and steel are permitted for specified attachments and fittings on the pressure cookers.



## ...What Have They To Do With Air Conditioning?

**SIMPLY THIS** — better air conditioning will result from what Worthington has learned in many wartime jobs, such as creating stratospheric conditions for testing engines which are to power high-level bombers — guns, carburetors, magnetos and many other items of airplane equipment. Tomorrow's comforts will reflect today's wartime achievements.

It's only natural for Worthington to be a leader in air conditioning improvements. Worthington has specialized for many years in the design and manufacture of most of

the types of equipment used in air-conditioning systems. Besides, Worthington has been a specialist in refrigeration machinery for more than 50 years.

Air conditioning of the future will see many improvements. Far-sighted architects, consulting engineers, distributors and proprietors are already discussing post-war air conditioning, today, with Worthington. There are district offices and representatives in principal cities — Worthington Pump and Machinery Corporation, Harrison, New Jersey.



**WORTH BEHIND THE NAME**  
**WORTHINGTON**



AR 4-2

# Ed Wright's Refrigeration Service Recognition Plan and Youngstown's RSES Chapter Win National Recognition in Recent WPB Citation

## Campaign Asks Former Repairmen to Leave Factories And Return to More Essential Service Employment

YOUNGSTOWN, Ohio—WPB's recent citation of the Youngstown refrigeration service on men was not only an impressive tribute to their efforts in behalf of the nation's health but it was at the same time a tribute to the service men of the entire nation. It was also a tribute to the work of one man, Ed Wright, to achieve such recognition for all his fellow workers. His one-man campaign to bring to the refrigeration serviceman the full measure of public recognition that his essential service to the home front deserves has attracted nation-wide attention.

### WROTE WPB IN FALL

You can't put your finger on the exact day or week that saw his program actually get under way, but the War Production Board got a letter from him last October in which he pointed out, with specific detail, that safeguarding the food and the health of a nation at war is a major wartime responsibility.

A recent Government survey had shown that within two years the number of refrigeration servicemen

had dropped, throughout the country as a whole, from 28,000 to 6,000.

Ed had helped in making that survey, and he became interested in why the figure was so high. He didn't believe that induction into the armed forces could account for anywhere near the shortage revealed.

He began asking questions, and found that men were leaving refrigeration servicing also for these reasons: too long hours and too little pay, too much night work, too little time for family and for recreation, and too little appreciation—in fact, almost none at all—or the part of the customers they served.

Added to these were the difficulties of getting gas, and tires, and any recognition of essentiality when it came time to appear before their draft boards.

He mentioned that the WMC was planning to organize and conduct a series of training schools for refrigeration servicemen. It was going to be a difficult job, he predicted—both to find good men and to train them in a craft that requires a pretty thorough knowledge of mechanics and electricity as well as chemistry.

In light of these facts, he suggested, it would be extremely practical to get back from other industries the trained refrigeration servicemen who know their stuff already. And the big thing that could bring them back and keep them, was a better all-around appreciation of the job in hand—an appreciation expressed in wages allowed, conditions created, and public recognition extended.

### WRIGHT OUTLINED PLAN

Shortly after this he set up a complete six-page outline of the problem in hand and a program that he thought could lick it. He called it the Refrigeration Service Recognition Plan, and during November wrote to other men in the industry asking their opinion on the practicality of the idea.

He got back letters of approval and endorsement from such men as Charles Logan, then president of ASRE; Warren Farr, director of RSES; R. Kennedy Hanson, executive secretary of REMA; Harry Alter, president of NRSJA; Art Schellenberger, of Alco Valve Co.; Terry Ter-



Lief Oyen (left), district WPB manager in Youngstown, Ohio, paid tribute to refrigeration service men for the importance of their work today by congratulating these four long-experienced repairmen: Gene Kreitzburg, 20 years service; Martin Bokesh, 19 years service; Chas. VanCise, 26 years; and Ed. Wright, president of the Youngstown RSES, who backed by his own 20 years as a sales and service operator, has been trying to obtain recognition for the refrigeration service field.

hune, of Servel; Sterling Smith, chief of the refrigeration and air conditioning section in WPB. He felt considerably heartened.

### LEADERS HEARD THE STORY

How much Ed Wright had to do with what happened December 20 again is hard to say, but certainly he and farsighted men like him were partly responsible for MPR 165, issued on that day, a ruling that increased price ceilings on repair charges for domestic and commercial refrigeration systems to a scale comparable to labor costs now prevalent in the auto and farm equipment industries (Air Conditioning & Refrigeration News, Jan. 3, 1944).

The Jan. 14 RSES meeting in Youngstown was, for Ed Wright, the climax to a planned cumulation of events. He called the meeting inviting to it a host of industrial and business leaders from the area, as a get-together to hear George Taubeneck talk about the increased war uses of refrigeration that have made the refrigeration serviceman one of

the most important war workers today.

What actually happened went quite a bit beyond the chapter's customary business procedure. An impressive number of municipal authorities, businessmen, factory bosses, former refrigeration men, and representatives of WMC, OPA, and WPB, heard the entire story of refrigeration at war, and saw three long-term servicemen, plus the chapter as a whole, honored with various awards.

The three servicemen were Martin Bokesh, with a record of 19 years of engineering behind him; Gene Kreitzburg, with 20 years; and Charles Van Cise, with 26 years.

High point in the program was the presentation by Lief Oyen, district manager of WPB, of a letter of commendation from Fred W. Gardner, director of WPB's general industrial equipment division, to Ed Wright for "the splendid cooperative effort put forth by the members of your organization."

### WAR COUNCIL ACTS

The Refrigeration Service Recognition Plan may be destined to go considerably farther. In a letter to Ed at the end of last year, Harry Alter, after having attended a meeting of the National Refrigeration War Council, made up of the presidents of various associations making up the industry, "I am glad to report that many of the things that you recommended in your plan are part of the Council's program."

Progress from here on will depend not alone upon Ed Wright, or the Council, but most of all upon the cooperation of the industry as a whole.

The big idea is to get former refrigeration mechanics back into the industry, and to train new men. Recognition of their essentiality to the community should, according to the Youngstown experience, go a long way to help such programs succeed.

### WAR INDUSTRIES NEED REFRIGERATION

The use of refrigeration in industry has been greatly accelerated by the war. In peace-time this expansion may logically be expected to continue. Write for literature.

#### GENERAL REFRIGERATION DIVISION

**Yates**  
American  
Machine Co.,  
Beloit, Wis.



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## Ice Cubes of Yesterday

TURN back the clock to yesterday. Across the years comes the ring of biting saws! The crickety squeak of sled-runners and bundled feet, on crispy snow. The laughter and banter of toiling men. The blowing of frosted breath. Grunting! Clanking!—It's ice-cutting time!

In those days, it wasn't easy to keep next summer's food from spoiling.

### HOW TIMES HAVE CHANGED!

Look at that gleaming white refrigerator of yours. Contemplate its contributions. More than just a 24-hour-a-day servant; more than

just a stimulus to the family appetite; more than just a beautiful piece of furniture—it is literally a guardian of human lives—*your family protector!*

Other inventions have been more spectacular, more talked-about; but none has added so much to the happiness and comfort of so many people.

A grateful nation pauses to give thanks to American inventive, engineering and manufacturing genius for the blessings and conveniences of the mechanical refrigerator!

HOUDAILLE★ is proud to have contributed to the dependability and excellence of modern refrigeration—proud to have worked hand-in-hand with the producers of mechanical refrigeration and other kindred household appliance industries.

We will continue, increasingly, in the postwar period, to cooperate and counsel with these important industries, in their efforts to put still further comforts and conveniences into your home.



## HOUDAILLE - HERSHLEY CORPORATION

Executive Offices—Detroit

Manufacturers of precision parts and equipment for the automotive, aircraft, railway, maritime, electrical refrigeration, radio and other industries

\*Pronounced: "HOO-DYE"

**HOUDAILLE'S PROUDEST PRIVILEGE HAS BEEN TO MARCH  
FORWARD WITH AMERICAN INDUSTRY...TO BEND OUR ENGINEERING  
AND MANUFACTURING SKILLS AND FACILITIES TO ITS NEEDS  
...TO SERVE IT FAITHFULLY**

## Air Conditioning 'Essential' In Making Polaroid Military Device Filters

CAMBRIDGE, Mass.—"The efficiency of many military aiming and sighting devices costing thousands of dollars depends to a great extent on little filters which often cost only a couple of dollars apiece."

Thus Otto Wolff, chief engineer of Polaroid Corp. here, characterized the role played by precision filters in modern war.

Describing the manufacture of Polaroid filters, Mr. Wolff asserted that installation of humidity and dust control equipment is "essential" to filter production areas. "Dust would spoil these precision filters which are used as attachments on vital military devices," he added.

The Polaroid filter manufacturing process is much the same as the one which in peacetime turned out millions of Polaroid sunglasses lenses for fishermen, motorists, and others. Briefly, the heart of the process is an automatic laminating machine and a specially developed adhesive material. The laminating

machine is unique in that in one continuous operation it manufactures adhesive material, cuts the colored plastic to the desired size, fastens the adhesive to the plastic, and conveys the adhesive-covered product on a belt to a group of girls on an assembly line. The girls put the adhesive-covered plastic between two pieces of clear glass, put the sandwich in a press to make the finished filter which is ready for use once it passes inspection.

A major part of the precision operation is conducted with a minimum of spoilage or rejects, as air conditioning and refrigerating equipment installed by Carrier Corp. in many of the production locations provides clean air, with constant temperature and humidity control.

Air cleaning eliminates the danger of dust settling on polished surfaces or in intricate parts to cause corrosion or erosion. Constant temperatures remove the "variable" from measurements occurring when metals

expand and contract as a result of temperature changes. Humidity is controlled to reduce perspiration on workers' hands so that fingerprints will not be present to cause failure of operating perfection in the finished product.

### Carrier Corp. 1943 Net Totals \$701,309

SYRACUSE, N. Y.—Carrier Corp. has reported for the year ended with October a net profit of \$701,309, equal to \$1.37 a common share. This compares with \$618,083, or \$1.52 a share, earned the year before.

The company's backlog of unfilled orders on Oct. 31 amounted to \$23,275,766, virtually all war business. Unfilled orders on hand a year earlier were \$23,127,959. Orders booked during the 1943 fiscal year amounted to \$27,976,848, compared with \$34,509,666 previously.

Consolidated balance sheet on Oct. 31 showed current assets of \$13,364,153 and current liabilities of \$8,389,291 compared with \$9,759,825 and \$5,311,435 respectively a year earlier. Cash rose to \$2,976,287 from \$540,776.

## N.Y. 'Times' Depicts Serviceman Shortage as Public Health Danger

### Badly Behind on Calls Now, Repair Shops Fear Summer Rush; Guild Meets With Officials

NEW YORK CITY—Following publication of a report in the "New York Times" that the shortage of refrigeration service manpower presents "a real danger to public health," steps were taken by Nathan Edelstein, president of the Refrigeration & Air Conditioning Guild, Inc., to meet with officials of Federal and local agencies for a discussion of plans to alleviate the situation.

Meetings are to be held with a representative of the War Manpower Commission, the United States Employment Service, and the New York Bureau of Education, said Mr. Edelstein, and a tie-up with the National Refrigeration Manpower and Training Program is considered a possi-

bility by the Guild and cooperating groups.

Said the "Times" report:

"New York City has not lost as many as 70% of its experienced refrigerator repair men, which is the national figure announced last week by the War Manpower Commission, yet the shortage here presents a real danger to public health, maintenance officials for three large companies agreed yesterday.

"With a 40% cut in personnel here, a serious situation next summer is predicted by R. J. McKenty, head of the repair division of Rex Cole, Inc., which services General Electric refrigerators. He said that calls now were being cared for 24 to 48 hours after their receipt, but he predicted that from May until November the average lapse would be six to eight days.

"Mr. McKenty said that most of the men who formerly did repair work are now in one of the armed services, and not in another industry, so that the War Manpower Commission's plea to experienced men to return to the vital refrigerator field 'doesn't suggest any improvement.' Repair parts, however, are becoming less scarce, he said.

"An even gloomier picture was sketched by Richard A. Browne, maintenance director for Norge Electrical Appliances. His company has lost 50% of its experienced repair men, he said, and replacements who are given two months' training in a special school have 'a little theoretical knowledge—and that's about all. You can't teach real troubleshooting in school.'

"Declaring that his staff was responsible for servicing about 250,000 boxes, and that 'we are working night and day, but we still can't catch up,' Mr. Browne blamed local draft boards for taking skilled repair men even though they are classified as essential.

"If they'd stop drafting even our replacements, then we could manage so that the public wouldn't suffer undue hardship," he asserted. "But people already are calling up and complaining that their food is poisoned—and we can't do anything about it."

"Now we're always a week or 10 days behind, and it may reach four weeks this summer. We do a lot of government work on ships, for example, and we don't have the manpower for much else."

"These conditions were corroborated by a member of the Frigidaire service department. Because housewives report that their machines are out of order even when they need only a routine check, the company has had to hire special 'analysts' who try to check on the trouble by telephone. Sometimes no service can be given in routine cases for two or three weeks."

### E. E. I. Commercial Group Schedules 11th Annual Convention April 3-5

NEW YORK CITY—April 3 to 5 are the days set for the 11th annual commercial meetings of Edison Electric Institute, according to C. E. Greenwood, commercial director. They are to be held, as usual, at the Edgewater Beach hotel, Chicago.

On Monday, April 3, special conferences are planned on Farm Electrification, Home Service and Industrial Power Applications. Recognition will be given to the 10th Anniversary of the Better Light-Better Sight Bureau and its contribution, along educational lines, to the electric industry and to the public.

At the formal speaking sessions on April 4 and 5, leading questions on electrical development in the post-war period will be discussed by authoritative speakers.

All sessions will be open to members of the entire electrical industry concerned with the future loadbuilding problems of the electric utility companies.

**have created many new improvements in Kerotest Manufacturing methods . . .**

Throughout Kerotest's sweeping conversion to war valve production . . . through the three-shift, 24-hour-a-day outpouring of Kerotest products for Victory . . . one standard of quality has prevailed: the KEROTEST standard—serving a fighting America with indispensable valve performance at home and abroad.

During this period Kerotest research engineers developed many new techniques in advanced engineering and precision that will be of real benefit to users of Kerotest Brass Valves in post-war refrigeration and air conditioning equipment.

**KEROTEST Valves**  
KEROTEST MANUFACTURING COMPANY  
PITTSBURGH, PENNSYLVANIA

## AA-2X Available on Certain Wiring Items

WASHINGTON, D. C.—Electrical distributors may obtain an AA-2X rating on specified electrical wiring items by applying to the War Production Board on Form WPB-547, according to a recent ruling made by the Electrical Section of WPB's Wholesale and Retail Trade Division to implement CMP Regulation 9A.

Individual orders under Regulation 9A are relatively small, but under the AA-2X rating they can be separated from the large volume of AA-3 paper to simplify priority procedure, WPB explained.

The items specified are: heavy wall conduit, electrical metallic tubing, wiring devices, outlet boxes, conduit fittings, and fuses.

## Chicago Steelmen See Little For Civilians

CHICAGO—There will be little steel available for civilian products in near future say steel producers in this area, except for that going into some consumers goods which require very little steel. Steel for larger items won't be available for a long time, producers believe.

Sales representatives of one steel producer have been told to discourage talk about steel for civilian uses, it is reported.

Some steel men say that the recent revelation of Japanese atrocities may quiet public demands for civilian steel.

## Hard Row Still Ahead on Copper, Says WPB

WASHINGTON, D. C.—The nation's copper requirements can be met only if industry and labor get together in an all-out production drive during the remainder of 1944, the Copper Producers Industry Advisory Committee have been told by officials of the WPB Copper Division.

It was generally agreed by representatives of industry and government that a hard fight lies ahead to meet the 1944 production goal. Requirement figures are fairly accurate but may be changed at any moment by shifting battle conditions, officials pointed out.

Michael Schwarz, director of the Copper Division, told the meeting that requirements are barely balanced by the supply based on maximum and uninterrupted production in the mines, in the refineries, and in the brass and wire mills. He said that the cut in small arms ammunition production, which received so much publicity a short time ago, has already been offset by greater use of copper and brass in other military products.

He pointed out that there can be no restrictions at this time, except perhaps for military items and highly essential civilian goods where the use of copper will effect a substantial saving in manpower or where the use of substitute materials has proven impractical.



### 'Have You Tried AIRO Lately?'

When men in the trade get together and someone sets up a moan about how tough it is to get parts, tools, and equipment, it's almost certain that somebody will direct him to AIRO. Why? Because AIRO has established a reputation for "having it." . . . If you have a particular "moan" right now, send for the newest AIRO catalog. Chances are, we can fix you up, too.

**AIRO SUPPLY CO., Dept. B**  
2732 N. Ashland Ave., Chicago 14, Ill.  
**WHOLESALE DISTRIBUTORS**  
Refrigeration Parts and Equipment

## York Stock Is Traded On N.Y. Exchange

NEW YORK CITY—Shares of the York Corp., producers of refrigeration and air conditioning equipment, have been admitted to trading on the New York Stock Exchange. The company had 928,626 common shares outstanding at the opening of the first day of trading.

Present on the floor of the Exchange when the first official trade was made in York stock were W. S. Shipley, chairman of the board of the company; S. E. Lauer, president; E. A. Kleinschmidt, executive vice president; John F. Lebor, treasurer. Following this, members of the official party were guests at a luncheon given by Emil Schram, president of the Exchange.

In its annual report for the year ended Sept. 30, York showed assets of \$24,656,203 and a net income after all taxes and charges of \$902,314. At that time, the company reported net sales of \$31,394,281. On Dec. 7 a dividend of 15 cents was voted.

## The Priorities Quiz

(AIR CONDITIONING & REFRIGERATION NEWS, with the aid of a man who is actually engaged in handling much priorities work, will attempt to answer questions from readers about priorities problems. The editors will not guarantee to answer all questions, nor can they guarantee that the answers will be legally perfect, but an effort will be made to provide a guide to correct procedure wherever possible.)

### How To Get Ratings For Factory Repairs

Q. Is it possible for a distributor to get a preference rating to have old valves and other parts repaired by a manufacturer for the distributor's stock? Many manufacturers tell us that they have so many rated orders on their books that they cannot accept goods from us for repair without a preference rating. How can we secure this rating?

A. This question was discussed with

Gilbert May who is Senior Analyst for the Plumbing, Heating and Refrigeration supplies wholesale and retail trade division of the Office of Civilian Requirements. He says that distributors may file PD-1X forms (WPB-547) for a preference rating to have returned goods repaired for their stock.

He says that it will be necessary for you to show the quantity of parts you will return for repairs in column A under Section 3 and state in column B that the valves are being returned for repairs. Also show the

total repair cost in column F of the quantity of parts you are returning. With this information, the War Production Board will issue a preference to you which you may extend to the manufacturer.

### Can't Mix Products Under L-38 Quotas

Q. We make both sectional refrigerated walk-in coolers and also we erect built-in coolers. Under the terms of Limitation Order L-38 can we apply the percentage of production figures permitted to a mixed quantity of these types of coolers?

A. Says the WPB: "Trying to mix walk-in coolers and built-in coolers in a production pattern is like trying to mix oil and water. The manufacturer should apply the 1/16 or rated orders on hand pattern to his production of sectional walk-in coolers and treat the built-in refrigerators which are not made on a production line as a different item of equipment."

**FREON-22**

**KINETIC**

**REG U.S. PAT OFF**

A "Freon" Safe Refrigerant for every purpose and for every machine design.

**DEUS EX MACHINA**

IT HAS become apparent to design engineers in the last decade that the way to build a piece of refrigerating equipment is first to choose a refrigerant of the desired properties to accomplish a purpose and then to design the equipment around the refrigerant. The refrigerant is the "god of the machine"—the "deus ex machina" and is not bought on price, but for what it will do. And as long as its cost is an insignificant part of the sales price and upkeep of the refrigerating machinery, it may be used to the advantage of the refrigerating manufacturing industry and the public.

Refrigerants of today are not of accidental origin. They are designed by skillful research chemists, and the research staff of Kinetic Chemicals, Inc., are continually synthesizing and experimenting with new non-toxic and non-flammable refrigerants which are offered

to the industry as soon as they are proved to be of marked advantage for some purpose.

"Freon-22" is such a refrigerant, and refrigerating engineers are working rapidly to design refrigerating machinery which will handle it with the greatest efficiency. Yesterday perhaps some of the "Freon-22" refrigerating machinery was just a modification of "Freon-12" design. Tomorrow the "Freon-22" machinery will be designed especially for "Freon-22."

"Freon-22" is what engineers with great enthusiasm call a "natural" for low-temperature refrigeration such as locker plants, farm freezers, and cold storage houses, and new designs in refrigerating machinery will be offered ice manufacturing plants which will permit of the lowering of costs in this industry. Kinetic Chemicals, Inc., Tenth and Market Streets, Wilmington, Delaware.

**"Freon-22"**

\*"FREON" IS KINETIC'S REGISTERED TRADE MARK FOR ITS FLUORINE REFRIGERANTS

**OASIS**  
Electric Water Coolers

The OASIS Water Cooler features engineering thoroughness as one of the factors that have made it a "top name" in so many ways. The stream of water produced by its "bubble" looks simple enough—but only expert engineering and experience were able to combine its size, angle, direction, height, pressure, temperature and control into the most pleasantly "drinkable" flow of water obtainable. And that flow of water is only one small factor in the preference for OASIS Coolers.

Using modern conveyor-line production methods, the makers of OASIS Coolers have lead the field in extending craftsmanship quality to quantity production. Each operation in OASIS production lines is handled by skilled specialists. The result: superior performance that lasts longer.

Postwar plans call for further advances in the leadership of products bearing the mark of EBCO quality. Then, as always, OASIS will be "the name at the top."

**EBCO MANUFACTURING COMPANY**  
401 W. Town St., Columbus 8, Ohio

## 17,500,000 PHILCO OWNERS

### What does that mean for the future?

We, too, have been reading the ads.

There's a good deal of talk about post-war plans and post-war business. Probably all right . . . if we don't forget there's a war to be won and the toughest part still lies ahead.

It's natural enough to think of the future. For this war loses much of its meaning if it isn't a fight to preserve our freedom to live and do business in what we call "the good, old American Way."

So what of the future of Philco All Year 'Round? We're still busy here . . . all-out . . . making military radio and electronic equipment, rocket projectiles for the Bazooka and other ordnance material, doing our part with all we've got so that there will be a future. But it would be a mistake not to say that we're thinking and planning. And that we see in the developments of our war research and production the Greater Philco All Year 'Round of the future.



#### New Philco Display—Now Ready RADIO HALL OF FAME

The new Philco program, hailed by press and public as a major contribution to broadcasting, is brought to listeners in the name of Philco dealers everywhere. It's your program . . . feature it in your windows. A handsome new display is ready. Ask your Philco distributor.

Every Sunday, Blue Network 6 to 7 P.M., E.W.T.

**PHILCO CORPORATION**

### Kelvinator Prepares Guide for Dealers

DETROIT—To help the appliance retailer establish sound, long-term plans for merchandising in the post-war era, Kelvinator Division of Nash-Kelvinator Corp. has prepared a comprehensive postwar planning guide which is primarily a "thought starter" and organizing tool containing ideas and suggestions which we believe will be helpful to appliance retailers, irrespective of any actual date when they may have new merchandise to sell," explains Charles T. Lawson, general sales manager of Kelvinator.

The guide is a "plan book" containing basic information and planning suggestions under the following headings: the market; the appliances to sell; the store or department; the selling organization; the promotion and advertising; creative selling; and replacement business.

Questions are listed under each of these subjects to guide the appliance retailer's thinking in taking steps now to include all of these factors in both short and long-term postwar planning.

A strong cardboard folder containing filing space for accumulating additional material under each of the headings is provided by the guide, since planning for peace-time business is a continuous job.

In his introduction to the guide Mr. Lawson states, "The aggressive retailer who wants to build a sound, enduring postwar business will look beyond the first period of 'easy selling' that will come when appliances are again available. He will look to the 'settling down' period which will follow."

## Postwar Refrigerator to Follow Traditional Lines, Dealers Say

### Retailers Themselves Plan Improvements, But See No Radical Changes, Frigidaire Finds

#### POSTWAR PLANS

Do you maintain an up-to-date list of Frigidaire users? Yes: 88%.

Are you building a refrigerator prospect list for future follow-up? Yes: 67%.

What are your plans for other improvements? Result, a majority of dealers emphasized these four points: Building additions to present quarters, greater emphasis on service, increasing to a greater-than-prewar personnel, moving to larger quarters.

#### FACTORY PARTICIPATION

New models most often are introduced to dealers at factory-conducted conventions for dealers and their salesmen. In 1942 they were introduced at business meetings held by the district offices. Which do you prefer? Conventions: Over 80%.

Granted that you may have to bear a share in the expense, how would you prefer to have your salesmen's training carried out? In large district schools, under factory sponsorship: 88%. (As opposed to courses held in the dealer's own store or city under his own leadership, or by the dealer with factory-furnished forms and films, or by the factory's representatives in the same setup).

#### GENERAL

Should we have promotional models after the war? Yes: 93%. No: 7%.

Should we continue to produce the standard size prewar models? Yes, in at least four models: 100%.

You've seen ads picturing refrigerators with revolving circular shelves. What do you think of the idea? Result: About evenly divided between yes, no, and maybe.

What about table-height refrigerators, to fit in with the other working surfaces in a modern kitchen? Result: Almost unanimously No—too much bending.

#### FROZEN FOODS

How about the combination refrigerator that includes frozen-food storage compartments? Yes, in at least two models: 94%. Don't care: 6%.

Do separate frozen-food storage cabinets look good as a selling item? Yes: 92%.

How popular do you think frozen foods are going to be in your community after the war, when shortages and rationing will be gone? More so than ever: 52%. About the same as prewar: 10%. Decline: 2%.

#### OTHER APPLIANCES

Frigidaire manufactures electric refrigerators, ranges, and water heaters. Would you like to see additional household appliances? Yes: 98%. Major and small appliances: 57%. Major only: 43%.

What appliances should these be? Combination refrigerators and frozen-food storage cabinets: 92%. Home freezers: 88%. Automatic washers: 86%. Wringer washers: 79%. Table-top ironers: 59%.

#### TRADE-INS

What about trade-ins? Do you prefer to resell them as is, or to recondition them, or to get rid of them in wholesale lots, or not to handle them at all? Do you anticipate that the immediate postwar picture vs. the more settled future will make any difference in your policy?

Policy	Imme. Postwar	Future
As is	47%	27%
Recondition	44	62
Wholesale	7	8
Don't want	2	3

Better servicing facilities were high among the planned postwar improvements, and 62% planned to recondition and resell their trade-ins. The value of efficient servicing has been proved as never before as a strong item for goodwill and cash profit since the early days of 1942. Enterprising dealers apparently have filed this fact away for future reference.

## Prospects for Postwar Appliances Given 'Priority Rating' by Dealer

BIRMINGHAM, Ala.—R. B. Broyles Furniture Co., of this city has inaugurated a "Priority Purchase Plan" for after-war delivery of electrical refrigerators and other electrical appliances. The customer pays nothing down and is not obligated if he does not wish to take the appliance. It merely puts him in line for the merchandise if he wants it and enables the company to gauge the demand.

"When the war is over and manufacturers go back to producing goods for peacetime living, they will not be able to keep up with the tremendous demand that has been built up through the years when household appliances have not been manufactured," said an announcement of the plan. "R. B. Broyles foresees this and offers this special service to its customers, enabling them to obtain

the articles they need as soon as the first new supplies are on the market.

"If you are planning to purchase a new electric refrigerator, washer, radio, electric iron, electric range, gas range or any one of the many other items now on priority, you will be wise to register in our new Priority Purchase Plan and get in on the ground floor."

"This is merely a check, enabling us to roughly gauge the quantity we need to order from the manufacturers and it is your assurance that you will be among the first to obtain the wanted items as soon as they arrive," continued the announcement. "By registering in this plan you are reserving the article you want, and it will be kept for you, for a reasonable length of time after you are notified that it has come in."

## Chief Engineer

Refrigeration and air conditioning equipment manufacturer with over 25 years' experience in the industry requires the services of a chief engineer. This man must have had experience in design engineering of air handling and heat transfer equipment. Experience in compressor design not necessary. This is a real opportunity for a man desiring a permanent position with an old established manufacturer who is now expanding operations for postwar production. Good living conditions in a city of 75,000 population. Write giving qualifications; age, and nationality. All replies will be held strictly confidential.

Box 1492, Air Conditioning & Refrigeration News

## Most Utilities Who Merchandised Before War Will Continue After War

**Greenwood Discounts Rumors That 'Over-Capacity' Of Electric Power Will Lead To Scramble For Load**

CHICAGO—"The American habit of installment buying will continue to be a major factor in large consumer purchases," declared C. E. Greenwood, commercial director, Edison Electric Institute, speaking before the meeting of the National Retail Furniture Assn. here during the annual Mart.

Mr. Greenwood quoted from a Consumer Banking Institute bulletin, and added that despite the fact that consumers have bought bonds with the intention of converting them to home appliances after the war, they will continue to buy bonds and to hold them as a reserve.

"We may expect a wider interest among finance companies in bidding for a consumer credit," he said. "There is indication that commercial banks will enter the field in greater number. Price of equipment is an influencing factor on terms. Some predict lower prices for electrical equipment; others see higher cost of production and distribution and refer to buyer strikes."

"The subject terms is one of the leading postwar considerations of electric companies," Mr. Greenwood said. He believes that utilities that may sell equipment direct will not follow a policy in financing which could be challenged as unfair competition.

### WHAT SURVEY SHOWED ON MERCHANTISING

In a recent survey of probable postwar merchandising plans among 389 utility companies, 22 replied, and out of 169 who sold equipment in 1941, 138 intend to continue that policy in peacetime, he pointed out. All intended to develop cooperative sales plans; 12 indicated they do not expect to continue to sell.

"It will be an advantage to be organized to cash-in on a more expansive electric market than has ever existed before. Utility companies have been alarmed by the dealer mortality, and if figures on this in the recent survey are any indication, the loss of dealer outlets—should the war last into 1945—will be 40 to 60%. Utilities companies made a strong attempt to throw maintenance repair work to the small dealer, knowing he was denied his profit on sales of apparatus."

### THE POLICY PROBLEM

"Utilities must appraise local conditions in the postwar months, and govern selling policy accordingly," Mr. Greenwood said. "Some may decide to sell a full line, others only major loadbuilding items; and others may not sell at all. But I feel that utility merchandising of the future will be done on a profit basis with full encouragement of dealer coordination."

"Retailers in the furniture, department store and hardware trades should be ready to serve a national market for major equipment and a long list of smaller appliances. The war interrupted a healthy expansion of the electric range market, promotion of which had been gaining momentum along cooperative lines. Ten years ago, the sale of electric ranges was about on the ratio of 15 to 1 with gas ranges, in 1941, the ratio was 4 to 1, and yet national saturation is about 12%."

"Electric kitchens with cooking, refrigeration and water heating will be aggressively sold as promptly as they are available for civilian use," Mr. Greenwood said.

All retailers welcome the activity of utilities in making more fertile markets for electric household equipment of all classes in the low saturation

tion group, in which they expect to share later profits, he pointed out, and gave the following figures: Electric ranges at 12% of saturation; water heaters at 4%; ironing machines at 6%; and room coolers in the pioneering stage. In his opinion, retailers may be assured of utility cooperation and any operating policy.

The rumor of stupendous spare capacities in all utility generating stations which will prompt all-out selling on old-time utility load building methods, may be dismissed, he commented.

### STORY ON POWER SUPPLY

"The privately-owned utilities have added 7,500,000 kilowatts of new generating capacity since the war began in Europe. On Dec. 31, 1939, the total was 33,900,000 kilowatts. The federal government has added 3,000,000 kilowatts to the 2,400,000 kilowatts previously installed, but even then only 8% of total generating capacity in the entire country is furnished by government plants. The striking feature of kilowatt output is an increase of 35 billion kilowatt-hours alone, with about 50% of that amount furnished by government plants.

"There will be load losses in this field, and private utilities in industrial sections may experience a substantial loss in energy sold, but those who reason from rumors of an impending scramble on the part of utilities for load, should understand that substantial amounts of commercial business be regained as blackouts and dimouts are left behind and the nation lights up for Victory. Your store will be lighted for Victory and air conditioning service will be restored and expanded.

"Further pertinent to this question of load is that residential business has increased 15% in the past three years. Utilities have a continuous job in building up greater use of electricity in consumer homes; so equipment must be sold and electricity used by the purchaser before there can be revenue to the utility. Retailers must be concerned with the method that may be applied to obtain these results, and pointed to cooperative activities as the best way."

### MASTERCRAFT ADJUSTABLE PAD AND CARRYING HARNESS



BEARSE MANUFACTURING CO.  
INCORPORATED 1921  
3815-3825 Cortland Street, Chicago 47, Illinois



## BOUND FOR UNKNOWN PORTS



### TODAY

In the early morning mists, a great convoy steals away for unknown ports, with its precious cargoes of men, munitions and food. Food for consumption on the voyage, for our boys in far-away countries, and for the oppressed peoples all over the world. Food, kept fresh and wholesome by refrigeration; only one of the many ways in which the refrigeration industry is helping to speed Victory.

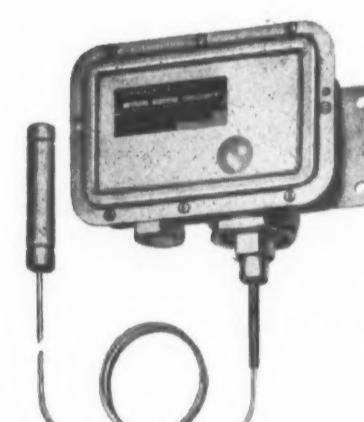
"DL" Contact Makers (Controls), specially designed for the rigors of wartime service, are in use today, by the thousands, on Maritime and Naval vessels, large and small, accurately controlling temperatures of food storage compartments, holds, refrigerated cases, etc., as well as protecting their engines from damage due to insufficient cooling or lubrication.

### TOMORROW

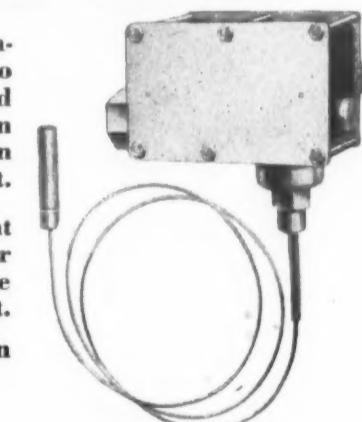
The refrigeration industry will continue to play one of the most vital parts in our civilian life, assuring everyone a supply of fresh, wholesome food, in or out of season.

Fresh seafood for the rancher in Arizona; fresh raspberries in January for the businessman in Boston. Low temperature storage units, and multiple temperature units for storage of meats, fruit, and frozen foods for the home will be within the reach of all.

The valuable data gained by the industry in production for war, will be used to make better products for peace. "Detroit" products then, as now, and as in the past, will continue to be the best that it is possible to produce for the refrigeration industry.



The No. 220 Hi-Shock Contact Maker is designed to withstand a 2000-ft. pound shock and will operate when completely submerged in water to a depth of 25 feet.



The No. 250-WT Water-Tight Contact Maker is designed for wet locations, where conditions may subject it to dripping or spray. It will operate submerged to a depth of three feet.

The above contact makers are available in refrigeration ranges for control of air, or liquid temperatures.

Write for Bulletins 204 and 206 for further data.

## DETROIT LUBRICATOR COMPANY

General Offices: DETROIT 8, MICHIGAN

Division of AMERICAN Radiator and "Standard" Sanitary Corporation  
Canadian Representatives—Railway and Engineering Specialties Ltd., Montreal, Toronto, Winnipeg

"DL" Heating and Refrigeration Controls • Engine Safety Controls • Safety Float Valves and Oil Burner Accessories • Radiator Valves and Balancing Fittings • Arco-Detroit Air and Vent Valves • "Detroit" Expansion Valves and Refrigeration Accessories • Air Filters • Stationary and Locomotive Lubricators



## Paul Jones of Philco Predicts 'No Radical Design In First Postwar Refrigerator'

**More Frozen Food Space, and Greater Storage Space Generally Seen as Features Most Desired**

PHILADELPHIA—The first refrigerators to reach the consumer when production is resumed will not be radical or revolutionary in design, it is predicted by W. Paul Jones, vice president in charge of refrigeration for Philco Corp., in a message to the company's dealers.

"This prediction is based on the premise that manufacturers, distributors, and dealers will be anxious to get back into civilian business quickly," Mr. Jones said. "Immediate production and transportation of materials will offer plenty of problems in the early months after the war, even without the complications of radical design changes and tooling up for new models."

"At the same time costly experience in other industries has proved that the buying public reacts slowly and cautiously to radical design changes and a period of transition between the pre-war and real post-war models should be desirable from many angles."

Many designers and pseudo-designers indulging in the famous indoor sport of postwar speculation on the shape of products to come, picture the postwar refrigerator as a fantastic piece of equipment, Mr. Jones pointed out. Some of these refrigerators have revolving shelves, or transparent cabinets, or with a chute on the side for ice cubes. Some picture doors that open automatically with an electric eye, doors that raise, doors that drop and many other dream features.

"Obviously a middle track is necessary to produce a practical piece of household equipment," Mr. Jones believes. "One thing is sure—there must be ample space for frozen food in the postwar refrigerator. The trend is definitely here."

"Of course the postwar refrigerator should have a humid area for the preservation of moist foods, cooked foods and left-overs. The ideal postwar refrigerator would be one that limits regimentation to an absolute minimum. In other words, a refrigerator that doesn't force the housewife to put certain foods in certain places and into certain kinds of containers."

"A point should be found where regimentation stops and real convenience begins. This is not going to be a simple problem because Mrs. Housewife is going to want more frozen food space and more humid space. She certainly can't do with less general space, yet she doesn't want a larger, bulkier box overall."

## 6 Principal Types of Retail Outlets Will Probably Sell Bulk of Major Appliances After the War

CHICAGO.—"Is there a present trend toward different distribution outlets after the war?" was the question discussed by C. V. Sorenson, chairman of the residential gas section of the American Gas Assn., before an audience of furniture dealers from all over the country in Chicago last month.

One large manufacturer recently surveyed the network of its former dealers, a national distribution chain including a high percentage of specialty outlets, he revealed, and found a majority of them available and ready to go back into appliance selling after the war.

There will be no shortage of distribution facilities after the war, Sorenson predicted. The question rather is one of choosing which ones are best suited to the selling job to be done. He discussed the most important of these with his listeners:

### THE SIX TYPES OF OUTLETS

1. Factory outlets provide the manufacturer with a quick and well controlled method of distribution, favorable especially to the introduction of new appliances, with no attendant fear of loss of dealers to competitors.

2. Specialty shops, when reliable, offer lower distribution costs because of their efficient inventory control, handling of credits, and training of manpower. They have the advantage

also of their policy of full-year aggressive selling, as opposed to the seasonal basis often observed by general stores.

3. Department stores are good mass-production outlets, especially of many-appliance lines. They are apt however to emphasize prices, and to favor private-brand merchandises. Their great advantage is that of volume.

4. Chain stores, including mail order houses, according to present indications are pointing toward marked expansion in the postwar period. They are aggressive, not confined to any given size community, and combine the presentations of floor and specialty selling.

5. Furniture stores offer efficiency in operation plus an unusual degree of access to the home. They are apt to be weak in competitive aggressiveness. This varies considerably between individual stores.

6. Public utilities are most effective as selling outlets when they are in active cooperation with local dealers. Securing public acceptance, for instance, has always been an elaborate promotional job for which the utilities are well fitted.

Recent utility and manufacturers' surveys indicate that the majority of utilities will resume postwar selling of appliances, realizing now more than ever that the utility stands to gain from the encouragement of all legitimate distribution channels.

They benefit, with the dealers, in the sale of the better grade appliances, and the introduction of new items, especially when these complement the functions of any already established (gas refrigeration plus gas heating can fill out a full-year air conditioning program).

For this reason, Sorenson believed, dealers can hope for effective cooperation from the utilities in such ways as market studies, and in campaigns in advertising, personnel training, and sales promotion.

### WHAT ABOUT GUARANTEES?

Other factors that must be considered with these, he pointed out, are servicing and guarantees. Most appliances require at least occasional servicing attention which the retail outlet must be willing to assume

responsibility for, if not the actual doing.

Guarantees likewise must depend upon what the manufacturer can provide, as well as what the customer is led to expect. Many ultimate purchasers after the war will be dubious about guarantees obviously difficult to fulfill. Manufacturers will have to be conservative in their claims, if the dealer is to have a chance to make good.

The main proviso must be this: Do the quality and the anticipated job of the appliance justify the guarantee that goes with the sale?

The postwar market for electrical appliances is tremendous, Sorenson agreed. The volume and the profits look bigger than they ever have. But the responsibilities are just as important as ever, and carry with them the entire measure of the job to be done.

## 'CP Range' Drive To be Continued

CLEVELAND—A new program designed to help keep the advantages of gas and of CP gas ranges before the public as well as to contribute both toward the war effort and postwar employment, was approved by representatives of the American Gas Association's Domestic Gas Range division and the Sales Management Committee of the Association of Gas Appliance and Equipment Manufacturers at a two-day meeting at the Carter hotel here. Full details of the new CP Program will be announced shortly.

The meeting also included a discussion of recommended changes in specifications of CP gas ranges. It was agreed that new specifications be revised to more accurately reflect functional rather than engineering standards.

Because of the growing importance of dealers in the distribution of gas ranges and other appliances it was decided to establish an advisory committee of retailers whose purpose it would be to help guide gas range manufacturers and utilities in their dealer relation and broad merchandising policy.

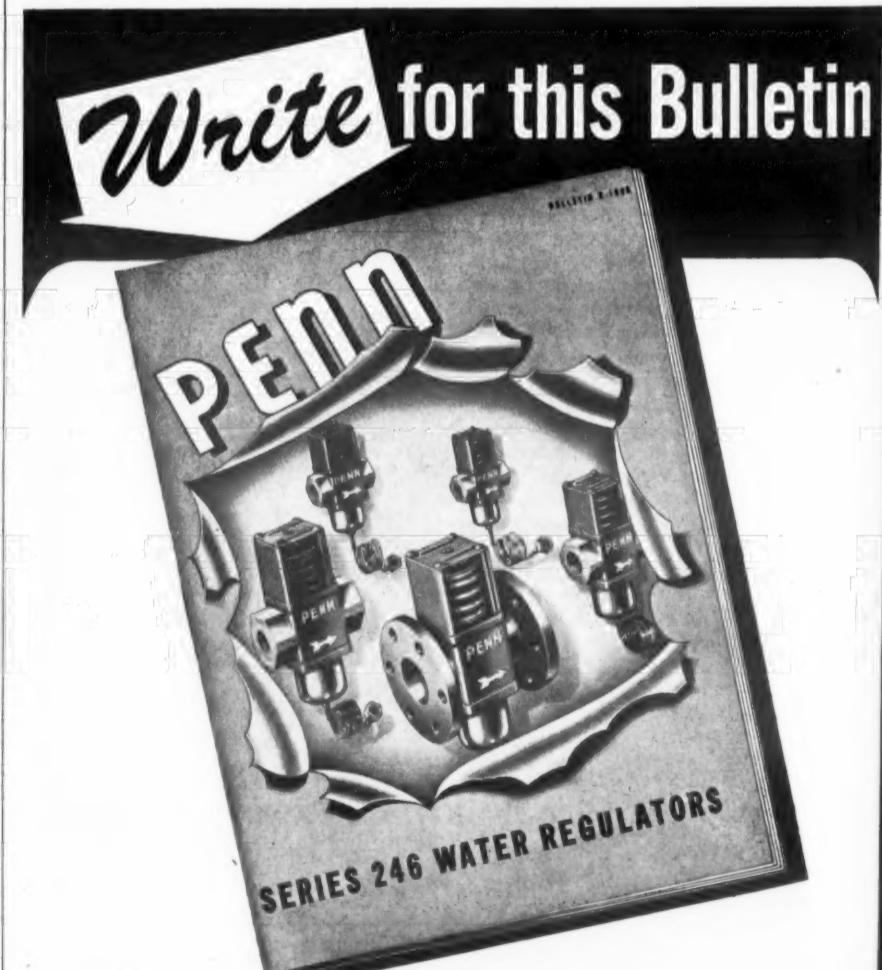


Inland workers know that the hands of America's fighting men across the seas are eagerly reaching for the weapons which they forge. The excellence of the material, and the volume in which it flows, bear powerful witness to the worth of their efforts.

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**INLAND**  
Manufacturing  
RUBBER, METAL, PLASTICS



HERE'S complete information about the exclusive advantages of Penn's new water valves. Learn why these valves are more efficient and dependable over a longer period for all refrigeration applications. *Sent Free* and without obligation, of course. Write today for Bulletin R-1986.

**PENN ELECTRIC SWITCH CO., Goshen, Indiana**

# Dealers Advised How To Start Plans Now for Full-Fledged Appliance Sales Effort Postwar

MINNEAPOLIS — Despite talk early in the war, particularly in Washington, that the nation's system of distribution would be radically changed, thinking now has returned to normalcy and it is realized that there will be little if any alteration in the set-up, predicted J. H. Rasmussen, commercial manager of Crosley Corp. in a talk before the annual meeting of the Minnesota Hardware Dealers' Association here recently.

In urging distributors and retailers to prepare their plans for postwar merchandising now, Mr. Rasmussen predicted that there may be smaller unit profits all along the line in the appliance and radio business, but the vastly increased production rates and sales possibilities that will be an inevitable result of the war will more than compensate for reduced margins.

## NO RADICAL CHANGE REQUIRED

"We at Crosley believe that the present system of distribution in the radio and appliance industry is sound. We do not believe that a radical change is required—we do not think it would be in the public interest. We went on record to this effect on July 26, 1943. Since that time many others have done likewise," declared Mr. Rasmussen.

The costs of wholesaling and retailing in radio and appliances have been materially reduced during the past 10 years, he said. This has been possible because of improved products that give better performance and less service—because of greater efficiencies and because of highly expanded volume.

"A further amplification of those same factors will provide greater efficiencies and lowered costs in the future. That is progress. I'm sure none of us, manufacturers, distributors or retailers, want to attempt to stand in the way of progress."

As these things are accomplished—when the costs are reduced—then the margins of distribution can be reduced still maintaining an adequate and fair margin of profit for the services rendered. When these things become fact not theory, then another great forward step will have been made by our industry, he averred.

"We believe in the factory-to-independent-distributor-to-dealer-type of distribution. Our announced policy was just recently confirmed by the sale of our Chicago factory branch to the Harry Alter Co. of that city.

"That's about the way the outlook shapes up for 1944. Tomorrow's developments may completely change our perspective."

## WHY THE BIGGER MARKET?

"We are urging our distributors and dealers to prepare for big volume increases in the postwar market. Why do we think the market will be so large? Let's take a quick look at some of the facts which are now available.

"Many of us often lose sight of the established fact that our country is growing rapidly. In 1940, there were six million more persons employed, or seeking employment in this country than in 1929. In 1940, 46 million employed persons produced more goods and services than in any previous year. In 1941, with shorter working hours, the pro-

## Urge 'Preparedness'



J. H. RASMUSSEN

ductivity was 25% greater than in 1929. After the war, there will be more than 57 million workers available to produce and to consume. Millions of these will want and will buy new radios and appliances.

"In addition to the appliances which were sold in volume prior to the war, there will be a greatly increased business in many that were just getting a good start.

"The frozen food cabinet is a good example. Only a small quantity has been produced and sold but the demand when production is permitted has been estimated in very large figures.

## A SLANT ON FROZEN FOODS

"We know that big meat packers are laying plans to put the old-fashioned meat industry on a production basis. They forecast savings to the consumer of 20% to 30% on 50-pound frozen meat assortments. The large food packers plan to get into the frozen food business. They forecast better quality and lower prices for frozen foods than for canned or fresh fruits and vegetables.

"When these programs materialize, the purchase of a frozen food cabinet will have an appeal from an economic as well as a convenience standpoint. The food savings will result from bulk purchases so a larger compartment will be required than can be contained in a two-temperature refrigerator.

**Refrigeration is a weapon of war. Air conditioning is essential to many delicate war operations.**

**These two simple truths are reasons to feature Gilmer Belts. Gilmers are rugged, long-lasting and efficient. When customers know that you handle Gilmers, plenty of sales and service opportunities open up of their own accord. Be sure to call your jobber today. He can bring you these fine Gilmer Belts.**

**filtrine**  
HIGH EFFICIENCY  
**WATER COOLERS**  
for  
War Plant Cafeterias  
Army and Navy Mess Halls  
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Complying with Type "C", L-126,  
Dec. 28, 1943  
**QUICK SHIPMENT**  
Forty years of experience in building special cooling equipment.  
Send for complete catalog.  
**FILTRINE MANUFACTURING CO.**  
53 Lexington Ave., Brooklyn 5, N.Y.

L. H. GILMER COMPANY  
Tacony, Philadelphia 35, Pa.

tractive store and window display, promotion and advertising go hand-in-hand with radio and appliance merchandising."

"We know how difficult it is to get and to train and to replace service men. How hard it is to get replacement parts. But many distributors and dealers are actually making friends today through their service department. The personnel is courteous. When they can't give customary prompt service, a good and polite explanation is made. Customers are being created for products when they are again available.

"During the past year or two, many prominent dealers have lost their identity as radio and appliance dealers.

## DON'T 'SHORT-CHANGE' THE SALES STAFF

"But I think it is not now too early for dealers to start identifying their stores as radio and appliance dealers as soon as products are available. Appropriate signs in the windows, in the store, direct mail and prominent display in your newspaper and radio advertising will some day pay big dividends.

"Certainly it's not too early to start an up-to-date prospect list.

"During the past 60 days, I've talked with many distributors and dealers. There seems to be two schools of thought on postwar selling.

"One school says, 'there is such a terrific pent-up demand for radios and appliances, there are billions of dollars in war bonds and other savings that are waiting to rush into the market as soon as production starts again. So we think there will be a 'sellers market' for several years after manufacture starts. Why

should we spend money on advertising and salesmen when the demand will be bigger than the supply? We are going to wait until supply is greater than the demand before we start to build a sales organization.'

"The other school says, 'we think there is going to be a bigger radio and appliance market after the war than has ever existed before. But, we also know that the production capacity of the radio and appliance industry will be increased many fold when war production stops. Practically every manufacturer in the business has sharply increased his capacity during the war. Therefore, we know that the 'sellers market' won't last long and that we soon will have to roll up our sleeves and do some good old-fashioned selling again.'

"This second school goes on to say, 'we know that selling has been easy during the past few years—we haven't really had any tough selling since 1938. We think that sales will be large in the postwar market, but only for those who have prepared to make them large.'

"Now we know that we could save some money on advertising and salesmen expense during the early allocation of production period—but its during that time we are going to build the nucleus of the selling organization we will later require. We are going to give a little at the start to make a good return later on.

"We are going to pay out some commissions at the start which we could save—but we can pay them and still make a fair profit. By paying them we are going to have trained people ready who will be the foundation of the really large radio and appliance business we expect to do for the many years to come."



**New Forming Methods**  
MAY SERVE PLASTIC USERS AFTER THE WAR!

**A** WAR-DEVELOPED method of forming cured Formica sheets to special shapes, originated by William Beach, Plastics Engineer, North American Aviation Corporation, may be of great importance to refrigerator manufacturers who wish to use plastic door panels, and similar forms.

Formica sheets of the odorless type may be bent to any inside radius larger than the thickness of the material.

The method is simplicity itself. The sheet is heated in an oven to a uniform temperature slightly higher than that at which it was cured—just under the blistering point—is quickly moved to a press with wooden or "Pregwood" dies and stamped into shape less than 15 seconds after it leaves the oven. Ask Formica engineers for the details.

"The Formica Story" is a moving picture in color which shows the qualities of Formica, how it is made, how it is used. Available for meetings of engineers and executives.

The Formica Insulation Co., 4026 Spring Grove Ave., Cincinnati 32, O.



**FORMICA**

# Inside Dope

By George F. Taubeneck

(Continued from Page 1, Column 1) happens to refrigeration men in the army.

"Here I want to say that what I am saying is strictly on my own hook, off the record and without the cognizance or authorization of the war department. It represents my own views and is definitely and strictly unofficial.

"I would suggest that in your future relations with training programs for new refrigeration engineering and service manpower, that you emphasize their training personnel who won't be subject to the draft as you will be wasting their time. The army either doesn't need them or doesn't care to use trained personnel, due to their desire to use their own training system to train them the army way. That always works best with green material, because no army instructor can compete with anyone who knows anything about what is being taught (at least any I have run into).

"I will admit that I have heard of one or two refrigeration men that actually have been called on to do refrigeration service in the army but I fondly believe that the great bulk never do more than look at or hear a machine running while engaged in the great effort of scrubbing the 'ice-box' while on K.P. I understand the army is terribly short of mechanics for this work. They can't

get enough of them. Actually, I feel sorry for the poor Post Engineer offices.

"When the poor refrigeration service man receives his greetings, he is sent to the induction station and examined physically. From what the local new inductees say I understand that one doctor gets on each side of him and looks in his ears and if they can't see each other, he is O.K. for the army. Then, accepted physically, he goes before a classification man who does discover that there is a classification occupationally for a refrigeration operating engineer and a refrigeration service man. He is listed as one of those and sent home.

"Then three weeks later he reports to the draft board and is sent to a reception center. There he gets the general classification test, the mechanical aptitude test and the radio aptitude test. He also is clothed, and gets his first shot.

"After that he goes to records and classification and gets sold insurance, gets his pay book, arranges to get his allotment to wife and kids, and gets classified occupationally. The classifier looks at the classification he got from induction center and, seeing that he is classified as a service man, gets out a little book of questions and asks them. If the man answers them correctly, he is listed as a refrigeration service man or operating engineer.

"Now it wants to be strictly under-

stood that if the poor man happens to be a refrigeration engineer, the army doesn't have a classification for him. Such a person has to either be put down as a service man or go to mechanical engineering (which he hasn't been trained for or hasn't practiced in so long that he doesn't remember anything about it). So he takes the lesser of two evils and is listed as a refrigeration service man. Well, at that point he feels everything is coming along fine.

"What the poor man doesn't know is that the reception center doesn't ship him out as a service man unless they have a specific order from some branch of the service for one, which is very seldom. The infantry may ask for 200 men, so they ship 200. If the signal corps wants 25, they ship 25 with the best radio test scores. If the transportation corps wants 50 they ship 50 mixed. The mechanics are liable to go to any branch.

"When they get to the replacement training center for the branch, they are put in a company of about 250 men. If they are going to train three mechanics and have 17, three get trained as a mechanic of the particular variety they need and the other 14 may be trained for anything else they need. That includes ditchdiggers, longshoremen, track walkers, dog trainers or anything else.

"This explains the predicament of the men referred to by Private Custer in your issue of Dec. 20, but not all of it. When the training as a mechanic is over, be it truck, jeep, refrigeration, radio, utility or what have you, he may be sent to a pool for replacements or organized into a new unit.

"In the latter case he has all chances of staying a mechanic of some kind—i.e. the kind the army trained him for. But in the former case, he is subject to call for replacement in any unit that happens to need a mechanic anywhere. He can be sent out of there as a replacement, then the man he is to replace will get out of the hospital or escape from capture or show up back from being AWOL or missing otherwise, and when our poor man gets there they don't need him. But they do need a cook's helper. So that is what he is from then on. On the other hand the man he was to replace may be still missing, so our hero gets the job.

"In other words, the refrigeration man has but little chance of staying one. He has a better chance of staying a mechanic. However, the draftee had better be prepared for anything. Because that is probably what he will be.

"Occasionally during the period of training, an honest C.O. or personnel expert will tell the man that there is nothing in the branch of service he is in that will do him justice, and will tell him to apply for a transfer. By that time the man will be so confused he won't know what he wants to do and not do it, or won't know where to ask to transfer to.

"The company I am in has no refrigeration but has several service men, only one of whom, myself, is training for mechanical work. Frankly, the training has been somewhat indifferent, but it has been one of the best vacations I have had in years. It has taken several inches off my waistline without changing my net weight. "If inducted, I say relax and enjoy it."

The fruit cake finished off a Christmas dinner in grand style. But honestly I think the finest thing in the box was the brilliantly colored cellophane tinsel (or is it tinsel when it's cellophane)?

Of course I appreciated all the letters, have read, am reading, and will re-read them and enjoy them for a long time to come. But at the critical moment, those flashing colors in the sunshine was just what the gang here needed to make us feel like Christmas. It did the trick. Then Christmas was officially here.

We are comfortable, and happily ensconced in a harbor for the holiday. Some of the boys on a picnic and swimming party have with them one of the turkeys you couldn't buy, and we on board heartily ate of another.

In other words, it's not a bad Christmas, and I want to thank you special for it. It's grand. It's swell.

Tomorrow is another holiday, not just Sunday but an anniversary. For those of us who have been with the "86" since she weighed anchor in a pleasant harbor on the West Coast, it is the completion of the 18th month. No, that doesn't mean we go home tomorrow; but it is quite an occasion.

Now in all those long months we have not seen the Solomons, we have not seen Australia, we have not seen New Guinea, and we have not seen Pearl Harbor. We are a little packet and we don't get around so very much. We have not seen an occasion when we could fire our guns at the Jap.

Not so long ago, I did run into Bill Long. I hailed him as he passed in a Jeep, and later went out in the evening to drink beer. Perhaps because it was the only time I've had more than two drinks in a day in a long, long spell, but more likely because it was really so, Bill looked swell, in good health and spirits.

We have seen a bombing. The perpetrators of same were the slant-eyed boys, and it is true that the physical phenomenon of slant-eyedness is a distinct aid to estimating the slanting trajectory of a bomb's fall. They fell where they were aimed.

Naturally they avoided the "86" as so much poison. In respect for that good judgment and in admiration for their aim, we resisted the temptation to attack, especially since our guns would reach only partially as high as they were, while their bombs would certainly reach as low as we were.

Actually it was small-time stuff. Exec. Ken Kendrick of Dallas was reliably quoted as saying, "... that wouldn't make good fireworks in Texas." Having voiced his disdain, he felt much better, and the peculiar feeling in his stomach almost went away entirely.

Little was got, and Uncle Sam got as many of them as they got off him. The "86" remained audience to the end. Having come so near to actual action, it retired shortly thereafter to much calmer waters, where a loud blast never signifies anything more significant than additional road building.

A destroyer very nearly ran over us one black night, and I signalled them at once to request assistance from one Edward L. Henderson in improving their lookout facilities. A tanker big enough to carry 50 million gallons swung her stern at us, and missed by 17 mm.

But for these little incidents, quite significant to us at the time but trivia on the present stage, we have mainly gone about our knitting and other household activities. Nothing very phenomenal has happened to us, and I must confess I'm just as happy.

I want to thank each one of you for your perfectly swell letters, and apologize for my negligence about (Concluded on Page 15, Column 1)

## Furnace Brazing

### SPEEDS ASSEMBLY OF ALUMINUM PARTS



The top and sidewalls of this housing are formed from Alcoa Aluminum brazing sheet, and they are joined by merely inserting the assembly in a brazing furnace. Alcoa Aluminum brazing sheet carries its own filler material on one or both sides as required by the job. Parts are formed of this sheet just as they are with ordinary sheet. Flux is applied, the assembly is put in a jig and inserted in a brazing furnace for the required length of time. The coating on the brazing sheet melts, thus forming the filler material which joins the parts together. The job goes fast. Man-hours are low. The part is accurate, neat, rigid and strong. All of the usual advantages of alumi-

num are retained: light weight, resistance to corrosion, fine appearance, etc.

Many a product used by our fighters is getting to them faster because this brazing method for assembling aluminum was adopted.

The cost of brazing is generally low. Brazed joints are neat and require little, if any, finishing. Parts too thin to be welded may be brazed.

Perhaps you can employ the brazing process to advantage, reducing the time and labor required for production, simplifying and improving your products. Alcoa engineers will gladly help you decide. ALUMINUM COMPANY OF AMERICA, 1975 Gulf Building, Pittsburgh, Pennsylvania.

### Our Private War Correspondents

A short time ago this column presented a ringing prose account of the amphibious invasion of North Africa, written just for us by Sailor Ed Henderson, on leave from the NEWS staff.

This week we offer some quiet accounts of life in the armed forces as seen by three of our on-leave staff members, none of whom have been shot at yet, but all of whom are experiencing extraordinary vignettes of life.

### Lieut. Bob Nixon Reports

You really hit the mail schedule this time, and no mistake. The schedule was timely, and then some. Here we were, sitting around on Christmas morning, helping each other get more miserable by the minute, feeling destitute as all-get-out with no Christmas mail, when suddenly in come five bags, including a most welcome box from the BNPCo.; Doubtless it was packaged to be opened on arrival.

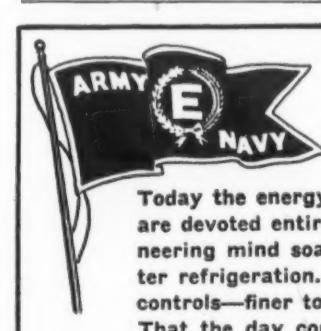
### MANHATTAN F/H V-BELTS

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Grips the grooves...  
stops slip—flexible  
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Endless cord construction resists internal heat and side wear.

**SILENT RUNNING**  
Smooth running and noiseless on high-speed drives.

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of Raybestos-Manhattan, Inc.  
Townsend Street  
Passaic, New Jersey



Today the energy, the skill, and the facilities of M. & E. are devoted entirely to military production. But the engineering mind soars to tomorrow—plans and dreams better refrigeration. New and better metals—more sensitive controls—finer tolerances—greater stamina—more power. That the day comes soon when these ideas can take concrete form is the hope of all of us.

**MERCHANT & EVANS COMPANY**  
PHILADELPHIA, PENNA. • Plant: LANCASTER, PENNA.



# Inside Dope

By George F. Taubeneck

(Concluded from Page 14, Column 5) correspondence in recent months. Since June of this year I've been skipper of the "86," and little as it is, it's a big job for me, and keeps me busy. At my advanced age I find it quite difficult to become accustomed to the idea of being a seafaring man.

I hope to be seeing you by late springtime. Meanwhile, as the job swamps me less, as time goes on I'll try to sit down to a typewriter more.

## Lieut. Jack Adams Reports

I have been intending to write to you ever since I arrived in this island, with which you are quite familiar. Conditions here today are quite different than they were at the time of your visit some years back, but basically the life of the islands is the same.

I doubt if life will ever be the same out here again, as the war and the high wages being paid to natives will leave a mark that will be hard to erase. And then I think there will be an influx of mainlanders out here after the war who will not understand the basic island philosophy. These souls will try to glamorize the place like they have southern California, and they will completely ruin it.

It is easy to see what a paradise it must have been in the days before the war. I have met a number of people who have lived here for years, and they have told me of the days of the past. Life must have been just one grand adventure—with recreation as the keynote. The bustle and rush of the city mainland life was lost, but a wonderful life went on.

I have come to the conclusion that we of the Middle West do too much rushing for our own good. We would get just as far the other way, and have a hell of a lot more fun doing it.

Most of the beauty spots out here have been preserved, although the war has moved in and taken over a number of them. That famous pink hotel—I believe you stayed there—is still a marvelous and beautiful spot, although it has been taken over as a rest center for service men. The grounds are immaculately kept, and the gardens are a feast for the eyes. It will still be a lovely spot for tourists after the war, and is greatly appreciated and loved by the service men using it today.

The rates are cheap (two bits a day for rooms that must have cost at least 20 bucks a day to the tourist). The only jarring note—if you can call it one—is to look up at the hotel and see the windows and porches filled with uniforms put out to dry by the service men who washed said uniforms themselves.

The other hotel—down the beach a way—and the one above it with the big banyan tree in its garden—have been untouched by the war except for obstacles along the beaches and the large preponderance of officer customers.

The famous beach has been a disappointment to me, however, as it is so narrow. The sand does not compare with that of our own Atlantic coast. But the color of the surfboards and outrigger canoes adds much. And the water for swimming is truly comfortable.

The war, of course, cannot hurt the climate and the natural beauty spots. I have never been in a more enjoyable climate. It is marvelous to be out in the evening with only a shirt on (in the month of November) and the days are not too warm unless you are working directly in the sun. The sunrise and the sunset are something that only poets and artists can truly report. It would be a crime to even attempt a description.

As for the nights, I doubt if even the artists and poets could do them justice, especially if the moon is full and shining with all its brilliance on the royal palms and silhouetting them against the ocean. I'd better quit or I'll be selling myself on the place permanently.

As for the natural beauty spots,

you know them all. They are still here. I have not seen them all yet but will before I leave. I also hope to do a little flying to some of the nearby places soon so that I'll know all about the islands.

The other night we went to a party where the majority of guests were old-time island residents. (I don't mean that the people were old, but that they knew the islands as of old). What a party! It was better than some of ours in the days of our gilded youth. They had a five-piece native orchestra which could really give out with native numbers, as well as "Sweet Sue" and other long-lived American favorites.

The food served included Americanized buffet supper (Phil wouldn't have liked bouncing his plate on his lap) with turkey and baked ham. The party had to break up before blackout time. (I wonder what it would have been like if it had run all night, as such parties did in the pre-war day?)

All of us like it out here very much. The enlisted men are much happier than they were in the States, except for the feminine problem. Their quarters are a lot nicer, the grounds better kept, their food is better and more plentiful, and the climate is—well, I have said all I need on that subject!

It is hard to think about such

things as Christmas, Thanksgiving, and New Year's. The radiant weather is not conducive to thinking along those lines at all.

I don't know how long we will be here. It looks like we'll do quite a hitch. But it is a nice place to be; and we will get in some valuable work while we are here.

## Sgt. Jim McCallum Reports

We certainly have seen a great variety of country since coming here. Everything from impenetrable jungle to endless desert; from miles-long, surf-pounded beaches to typical dusty bush country; from little grass-thatched native villages to the striped and canopied tents of wandering Bedouin tribesmen; from the sun-baked, mud-plastered buildings of French desert towns, to the more modern, Continental architecture of the northern ports.

Wild life, too, we've seen in abundance. Not "lions and tigers and everything," but nonetheless all sorts of beasts that I never really thought existed outside of zoos and "movie pitchers."

Camels we've seen in profusion, both wild and of the caravan type, and several varieties of African antelope. Ostriches, too—and they didn't hide their heads in the sand even when we flew low enough over them to ruffle their feathers with the prop wash. They just ran and ran with that awkward stiff-legged gait of theirs.

Also we've seen baboons by the score, herds of wild horses and long-horned native cattle, not a few

scorpions, and lizards so thick you can hardly avoid stepping on them when you walk.

If you think I'm entirely divorced from the industry just because I'm in the service, you've got another guess coming. In fact, I am continually amazed by the constant new evidences of the refrigeration industry that I see around me each day.

Just for example, I noticed just the other day (after all this time!) that the props which pull our Fortress through the air were made in Nash-Kelvinator's propeller plant at Lansing.

Never a day passes that I don't see some new evidence of the multitudinous ways in which the industry which the NEWS serves is in turn serving the nation's war effort. Its contribution is indeed impressive and commendable.

Sgt. James McCallum,  
North Africa.

## Grantisms

Richard H. Grant, one of the greatest sales executives of all time, retired the other day. At a farewell banquet, friends and associates remembered him with the most beautiful "presentation book" we've ever seen. On each page of friendly autographs was imprinted a "Grantism"—one of his remarkable remarks in sales meetings. We hereby relay them to you. Many subscribers connected with Frigidaire, General Motors, or Delco will remember them with nostalgia.

1. Quote the price without a quiver.

2. It's only the hours spent in the presence of prospects that count.

3. Take care of your own business and your competitors won't have any business to take care of.

4. When you hire people who are smarter than you are, you prove you are smarter than they are.

5. Never say you have done a good job—that means you are through.

6. Carry an order blank in your night-shirt pocket in case you walk in your sleep.

7. Why?

8. I'll trade a \$50.00 loss for a hundred dollar profit all day long.

9. It's the spirit of a selling organization that counts.

10. You are as a good a supervisor as you are a checker.

11. There is no substitute for firing-line experience.

12.—and remember, good salesmanship is the thing that makes the smoke come out of the factory chimneys.

13. You're as good a salesman as you are a thinker and worker.

14. Don't be tied to the dinner bell.

15. Verbal orders don't go.

16. Give me the first thirty minutes of a sales convention, and I don't care what you do afterwards.

17. I don't want a selling organization that doesn't sing.

18. Gentlemen: Since you can't agree I will make an unanimous decision for the convention.

19. One picture is worth ten thousand words.

20. Yes, but, Mr. Prospect.



## FROM RUBIES...TO RUBBER...FOR WAR!

HERE IS an almost unknown chapter in America's war record.

It is the story of owners who voluntarily relinquished equipment—who in a very special way put aside self-interest to speed victory.

In the store of Tiffany & Company on Fifth Avenue there was a Carrier Air Conditioning System. Its heart was a Carrier Centrifugal Refrigeration Machine.

This machine was needed for the manufacture of synthetic rubber—that "America & Company" might have tires more quickly.

And so Tiffany & Company permitted this essential part of their store equipment to forsake rubies for rubber.

But this is only one chapter of the story. Many of America's great stores have rendered similar service...have

given our country a priceless gift: Time! . . . the months it would have taken to build new Carrier machinery.

And in War, time saved means lives saved.

When the world turns from war to peace, Carrier Air Conditioning will again contribute to man's progress . . . whether on Fifth Avenue . . . or in factories that will make the dreams of daring men come true.

CARRIER CORPORATION, Syracuse, N. Y.

# Air Conditioning & REFRIGERATION NEWS

Trade Mark registered U. S. Patent Office;  
Established 1926 and registered as  
Electric Refrigeration News

F. M. COCKRELL, Founder

Published Every Monday by  
BUSINESS NEWS PUBLISHING CO.  
5229 Cass Ave., Detroit, Mich.  
Telephone Columbia 4242

Subscription Rates  
U. S. and Possessions, Canada, and all countries  
in the Pan-American Postal Union: \$4.00 per year;  
2 years for \$7.00. All other foreign countries: \$6.00  
per year. Single copy price, 20 cents. Ten or  
more copies, 15 cents each; 50 or more copies,  
10 cents each. Send remittance with order.

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VOLUME 41, NO. 7, SERIAL NO. 778  
FEBRUARY 14, 1944  
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## Why Wooden Iceboxes?

DONALD NELSON succinctly expressed one of the major, unbelievable faults of "big government" when he once complained to a large gathering of his WPB associates: "It takes too long to get things done around here."

Another and concomitant fault inherent in a big, centralized, controlled economy is that acts—instigated originally when very good reason existed for them—tend to go on long after their need has expired. Frequently they are thus perpetuated to the detriment of their original purpose.

One of the functions of the free press in a democracy is to call attention to such things. So, when the NEWS puts the spotlight on matters of this nature, we do so because it's part of our job, our duty, our function. These introductory remarks, we hope, will be heeded especially by:

(1) Dyed-in-the-wool Democrats, who sometimes believe that any criticism of any remote act of any government bureau or appendage is a slap at Roosevelt and the party.

(2) Good friends of ours in the War Production Board, who are doing a great job under terrific difficulties, a job which no group of men on earth could do perfectly.

(3) Members of various industry advisory committees, for whom the same thing can be said—men who certainly deserve praise for giving so much of their valuable time and contributing such excellent thinking to the programs for economic controls.

(4) Those misguided "patriots" who believe that "unity" means marching over the cliff if an officer gives the wrong order, and that all citizens should emulate the famed deaf-dumb-blind monkey trio.

All this is preliminary to the asking of a very simple question:

**They'll Do  
It Every  
Time  
By  
Jimmy  
Hatlo**



"Why, if steel is now in abundance, and wood so scarce and critical, are icebox makers still forced to substitute wood for steel by WPB order?"

When the steel limitations were originally placed on icebox manufacturers, there was excellent reason. Steel was then "tight," wood more abundant. Today the situation is reversed. If steel is available and wood is critical, why not use the steel?

And while we're on the subject, we still wonder where the manpower, gasoline, and tires are coming from to deliver the ice to thousands of new iceboxes.

We believe in the necessity of refrigeration for civilians as much as anybody, but we sometimes wonder if the powers-that-be aren't going about supplying that refrigeration the hard way.

## LETTERS

### THIS JOBBER IS MAKING HIS OWN POSTWAR PLANS

Refrigeration Supply Co.  
2613-A Elm St.  
Dallas, Texas

Editor:

I have noticed in the REFRIGERATION NEWS for some time now various companies are making plans for postwar business and expansion, and thought I would give you a word on our operations and future plans, should you feel it worthy of mention in your paper.

We have as you might say, been marking time for the past two years under existing restrictions and regulations, and the help problem, taking care of our customers the best we could, and not attempting to take on a lot of unprofitable large volume business to government contractors, and saving our energy and money for future expansion.

You no doubt know we will have been in this particular business nine years the first of May, both the wife and I having worked during the entire period. It has been our desire from the beginning to build a complete and exclusive wholesale refrigeration supply business, and in a building of our own.

We recently purchased a brick building in the industrial section of the city at the corner of Griffin and Hoard Sts., which is two blocks from General Electric and Westinghouse, and one block from Huey & Phillips Hardware Co., who are Crosley distributors, and right at a railroad switch, yet only five short blocks from the downtown business section.

This is an old building, but we expect to remodel it to fit our requirements, and occupy about the first of May. The building itself has about twice the floor space as the building we occupy at the present time, and has a lot in the rear for parking or future building.

With our past experience in the refrigeration and air conditioning field before entering this business, we will be in position to meet whatever changes and expansions in the field brought on from the war, such as low temperature refrigerators in the homes and re-

placement parts and units on many of the old ice cream cabinets which have been adapted to home use as low temperature cabinets, both in the cities and rural districts.

With this letter goes our best wishes for you and your paper for the coming year.

U. C. Boyles

### WHEN CONVERTING TO METHYL READ THE 'NEWS'

Liggett Drug Co., Inc.  
43 Leon St., Boston, Mass.

Editor:

I have recently become a subscriber to your paper AIR CONDITIONING & REFRIGERATION NEWS. I understand that last year you published some articles with regard to the use of methyl chloride in air conditioning plants in place of "Freon."

Would it be possible for you to send me copies of any articles regarding the use of methyl chloride, particularly its dangerous properties. We have not permitted any of our stores to use methyl chloride in our air conditioning plants in place of "Freon," and any comments you might wish to make with regard to the use of methyl would also be appreciated.

A. C. Lawall, Construction Dept.

Answer: Following articles published in the NEWS dealing with this problem cover the subject pretty well.

"Methyl Chloride Limitations—How to Avoid Hazards," by Dr. W. O. Walker of Ansul Chemical Co., Sept. 13, page 8.

"Changing from 'Freon-12' to Methyl Chloride," by P. B. Reed of Servel, Inc., Sept. 13, page 10.

"Stick to ASA Safety Code in Changing Refrigerants, N. Y. Firm Advises—'Sensible Use of Refrigerants'" by A. C. Buensod, president, Buensod-Stacy, Inc., Sept. 13, page 18.

"Three Manufacturers Discuss Substitution of Methyl Chloride For 'Freon':"

(a) "Two Universal Cooler Bulletins Tell Service Men How to Make the Change."

(b) "Frigidaire Cites Many Factors Involved in Making Substitution."

(c) "Brunner Engineer Describes Experiments Using Mixture of Two Refrigerants."

Sep. 27, page 12.

"Conversion of 'Freon' Valves to Methyl Chloride Operation," by F. Y. Carter, Detroit Lubricator Co., Oct. 25, page 16.

### POSTWAR DISPOSAL OF SURPLUSES

Refrigeration & Air Conditioning Association  
626 Broadway, Cincinnati, Ohio

Editor:

The attached is self-explanatory and we will appreciate any boost which you can give the matter.

A. Bachman, Secretary

Honorable Charles H. Elston  
Member of Congress from Ohio  
Washington, D. C.

Dear Congressman:

This will acknowledge your letter of Jan. 14, also copy of Congressional Record containing the remarks of the Honorable Forest A. Harness of Indiana, which included copy of his (H.B. 3856) bill.

This matter was presented at the regular meeting of this association on last Tuesday evening and was discussed from all angles. We note that you approve this bill and that it has been referred to the Military Affairs Committee, of which you are a member.

As we understand this bill, government-owned critical materials and equipment will not be disposed of until three years after the President proclaims the end of the war and government-owned plants and factories will be kept intact until five years after the President proclaims the end of the war, the only

exception being materials subject to spoilage.

We feel there is a tremendous amount of surplus raw and finished refrigeration and air conditioning materials and equipment in government warehouses and if we wait until three years after the end of the war to release this material and equipment, it will demoralize the industry and seriously effect the national economy, with the result that manufacturers will not be able to get into new production until this surplus is absorbed. Finished equipment held until three years after the end of the war will be junk in any local market, because it will be outmoded.

The Refrigeration & Air Conditioning Industry should be placed in position to employ the maximum of its returning armed forces and if a start can be made now to dispose of surplus materials and equipment, through manufacturers from whom it was purchased, under the present priority system until the end of the war and, after the war, on a fixed ratio of surplus materials and equipment to newly manufactured similar lines, we will be in position to fulfill our obligations to our returning armed forces.

As we see it, the Refrigeration & Air Conditioning Industry should be second only to agriculture, building and automobile industries and, if as much of the surplus materials and equipment as possible is sold to our allies and shipped out of the country and non-competitive raw materials taken in payment, our industry will absorb more than its full share of our returning armed forces.

Your continued interest will be very much appreciated.

A. Bachman, Secretary

### 67 TELEGRAMS, 52 LETTERS

1150 Union Ave.  
Memphis, Tenn.

Editor:

I have before me your letter of Jan. 10, 1944. You would like to know how many prospective employers answered that letter I had in the NEWS. Well sir, I sure found out in a hurry just how mistaken I was about the shortage of skilled men in the refrigeration business. I had 67 telegrams and 52 letters and four telephone calls practically from all over the country.

I was really amazed at the scope of the NEWS. I thought it was more or less a Yankee publication for Yankees but here I am in Memphis (where the people live to be 35 years old before they find out damn Yankee is two words) and the NEWS is the bible of the industry.

I am working for Vita Freez, Inc., the south's most recognized frozen food locker authority and I owe it all to the NEWS.

Henceforth I shall never be caught with my NEWS down.

Thank you for your interest.

Floyd Reibe

### NEITHER CAN WE

Guardian Refrigeration & Air Conditioning Service  
140 West 142nd St.  
New York, N. Y.

Editor:

There are so many masterful articles appearing in the AIR CONDITIONING & REFRIGERATION NEWS, etc., that I don't see how the average mechanic in the field, that wants to be wide awake about the industry, can refrain from subscribing to your publication.

Edgar C. Williams

## Repairmen Eligible For Tires Although Rules Are Changed

WASHINGTON, D. C.—Allocation to civilians of Grade I passenger car tires (new prewar tires or new synthetic tires) will henceforth be made on the basis of essentiality of the driving rather than on the basis of how many miles a month the car travels, according to an announcement made Feb. 1 by the Office of Price Administration.

Local rationing boards have been ordered to abandon the present regulation limiting Grade I tires to those persons holding gasoline rations good for driving 601 miles a month or more.

While refrigeration service men are not mentioned specifically in OPA's list of essential drivers recommended for Grade I tires, repair and maintenance workers in general are included in the approved list.

If Grade I tires are not available, essential drivers will be given first choice of Grade III tires (used tires or new tires made principally from reclaimed rubber), OPA explained, with less essential drivers taking what's left.

"Serious depletion of the supply of used passenger tires available for rationing to low-mileage drivers, coupled with inadequate stocks of new tires," forced the change in the rationing rules, OPA declared.

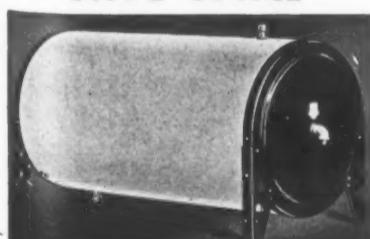
## Wolverine Announces Sales Staff Changes

DETROIT—Several changes have been made in the sales department of Wolverine Tube division of Calumet and Hecla Consolidated Copper Co., centering about the appointment of G. H. Tobelman as manager of the eastern territory with offices in New York City.

Mr. Tobelman has had many years of experience in the tube industry, having spent a number of years in tube fabrication and later being instrumental in the early development and operation of the rocking process of the Tube Reducing Corp. For the past 11 years he has been connected with the Bridgeport Brass Co., where during the last few years he managed the sales of the eastern division.

In his new capacity, Mr. Tobelman will supervise the other eastern branches which have also recently undergone personnel changes. C. E. Rinaman, formerly in the New York area, will manage the Boston territory; Philadelphia will be under W. C. Gernhart, formerly in Detroit; F. R. Meier will cover greater New York and A. S. Kingerley will continue in New Jersey.

## "DAY & NIGHT" STORAGE TYPE TANKS SAVE SPACE



Compact "Day & Night" Storage Units, such as the Model CE-25 shown above, may be installed any place . . . on walls or ceilings . . . or integral with condensing unit . . . wherever cold water is required for drinking, jacket cooling, photographic processes, cooling welding tips, etc. A modern scuttlebutt for shipboard use. Supplied on storage capacities from 6 to 100 gallons.

Write For Latest Data

**COOLER DIVISION**  
**DAY & NIGHT MFG. CO.**  
MONROVIA, CALIFORNIA  
FACTORY REPRESENTATIVES  
NEW YORK CHICAGO  
A.C. Hommer, 682 Wabash • Marc Shantz, 565 Wash. Blvd.  
ST. LOUIS DECATUR, GA.  
R.H. Spangler, 3331 Market St. • J.E. Parker, 228 2nd St.

## U. S. May Initiate Food Warehouse Program

WASHINGTON, D. C.—U. S. Department of Agriculture is reported to be taking initial steps in a postwar public works program aimed at improving food distribution facilities at terminal markets throughout the country.

City markets for farm produce are now being surveyed by department experts, and the findings together with suggestions for improvement, will be submitted to the food distribution trades and state and municipal governments.

Special need for enlarged or redesigned terminal facilities was said to have been found in Washington, D. C.; Baltimore, Philadelphia; Bos-

ton; New York City; and in most of the large southern cities.

Existing city markets are said to be under criticism for being antiquated and inefficient in design, located nearer to waterways than to railroads, and too small.

One official estimated that 50% of the retail cost of fresh produce in New York City could be traced to inefficient marketing practices.

## Schroeder and Stilebower Form Indianapolis Firm

INDIANAPOLIS, Ind.—Harry C. Schroeder, former president of the Appliance Parts Jobbers Association, Inc., and Harold Stilebower have formed Appliance Parts Co. at 123 E. New York St. here.

## Kelvinator of Canada Net \$157,821

LONDON, Ont., Canada—Kelvinator of Canada, Ltd., and its Canadian subsidiaries, Leonard Refrigerator Co. and Refrigeration Supplies Co., report net profit of \$157,821, after depreciation, taxes and other charges for fiscal year ended Sept. 30, 1943. This was equal to \$1.58 a share on common stock and compared with \$159,157 or \$1.59 a share the previous year. Balance sheet lists current assets of \$1,325,637 and current liabilities \$749,038. While the company did not produce any household refrigeration in the past year, there was a fair volume of commercial refrigeration business and the usual service and parts sales.

## Dates of Summer Mart Changed To July

CHICAGO—To avoid conflict with scheduled conventions and the resultant hotel crowding, the summer furniture and home furnishing markets will be held here July 6 to 15 instead of June 1 to 10, as previously announced, according to a joint statement issued by the board of governors of the American Furniture Mart and Merchandise Mart officials.

The probability that the Democratic national convention will be held later than anticipated, it was stated, also permits the mart to go "to the traditional July time when dealers, particularly in agricultural areas, can better determine the crop and general business outlook."

## It's Time To Tell About REFRIGERATION'S HIDDEN SERVICES



REFRIGERATION today is adding millions of pounds of sugar to America's production—EXTRA pounds that might otherwise never have reached market. Sugar refineries, by standard concentration and crystallization methods, usually recover only about 80% to 85% of the sucrose available in sugar beets. But by a special precipitation process involving special coolers under accurate temperature control, much of the additional 15% to 20% is now extracted—a little-known service of refrigeration that is more important today than ever before.

A-P DEPENDABLE Refrigerant Valves are performing their accurate, supersensitive refrigerant control-duty on many of these "hidden" services of refrigeration, both in civilian and in wartime applications. And back in

the A-P research laboratory, men, skilled, experienced engineers, designers, technicians, are again ready to put their knowledge of intricate control problems to use in helping post-war planners in the development of new peacetime products. Use this service—to YOUR profit.



### AUTOMATIC PRODUCTS COMPANY

2450 North Thirty-Second Street • Milwaukee 10, Wisconsin  
Export Dept.: 15 East 40th Street, New York City 16, New York



Thermostatic Expansion — Solenoid  
— Constant Suction Pressure — Water  
Regulating Valves — "Trap-Dri" Sys-  
tem Protectors — Water Solenoids —  
Cooling Thermostats.

## DEPENDABLE REFRIGERANT VALVES

STOCKED AND SOLD BY PROGRESSIVE REFRIGERATION JOBBERS EVERYWHERE  
— USED AND RECOMMENDED BY LEADING SERVICE ENGINEERS

## AMINCO WATER REGULATING VALVE

- Quiet
- No Chatter
- Practically friction-free
- Maximum flow with minimum head pressure differential



No. 614

Aminco No. 614 water valve regulates the amount of water passing through water-cooled condensers...

This valve is helping to keep systems in tip-top condition and because of its close control action it provides insurance of longer life for water-cooled condensers.

Sold, as always, through jobbing channels, it is an invaluable aid to the service-man concerned with keeping installations operating at full efficiency.

For more details see Bulletin No. 15.

**AMERICAN INJECTOR COMPANY**  
1481 Fourteenth Avenue

DETROIT, MICHIGAN

Pacific Coast: Van D. Clothier, 1015 E. 16th, Los Angeles, Calif.  
Export: Borg-Warner International Corp., 310 S. Michigan Ave., Chicago, Ill.

- Double Bellows Seal
- Removable Body Seat
- For all refrigerants — except ammonia
- Standard connections 3/8" x 3/8" F.P.T.
- Pressure Controlled

## Sound Business and Credit Tactics for a Refrigeration Parts Distribution Firm

### Quick Service, Good Inventory, and Accurate Credit Records Are Vital

**EDITOR'S NOTE:** Ted Glou is recognized as one of the country's most progressive refrigeration parts and supplies distributors. He is continually seeking new and improved methods of promotion and of servicing his accounts. In addition, he takes an active part in industry cooperative efforts. At the request of the editors Mr. Glou wrote the following article describing sound practice in the operation of a parts and supplies wholesaling business.

By Theodore L. Glou, Central Service Supply Co., Syracuse, N. Y.

The successful distribution of refrigeration parts, supplies, and equipment commonly known as "Refrigeration Jobbing" is basically the same as the successful distribution in any other wholesale business. The chief difference in refrigeration is that when material is needed for repair or maintenance it must be on hand.

In any other business where the repair parts of materials are needed and are not available the equipment is merely laid up and a delay is experienced until the parts arrive. In refrigeration break-downs not only does this happen but spoilage of material, in this case food, sets in and it is this spoilage and waste that must be avoided. The parts and supply jobbing firm that can give stock service on the most types of

equipment in the area that it is serving and having a knowledge of refrigeration and its problems is most likely to succeed.

Fundamentally, all businesses require sound policies of service, credits, customer relations, and sales promotion. If these are planned well, success will most likely follow. Some of the methods described in this article may not be successful in other territories but most of them were given extensive tests and the results were such that these methods were retained for our operations.

Our firm was conceived with the idea of having a convenient supply of repair parts available at central locations. It was this that gave us our name "Central Service Supply Company." Our policy was and is to sell only to the wholesale trade and legitimate independent repair men, refrigeration dealers, and distributors.

SALESMEN SHOULD SELL

Credit and customer relations can be called synonymous. It was the writer's experience in the retail merchandising field upon investigating customer complaints that the majority of customer complaints develop when collectors or credit departments dunned the customer for payments on past due accounts. It was usually these customers that always found fault with the merchandise, the service, or the policies of the firm.

With this in mind, our credit policy was established on a very critical basis. This eliminated about 98% of possible sources of complaints, resulting in unusually pleasant customer relations. Another result of this policy was an almost 100% elimination of credit losses over a period of seven years, making it unnecessary to charge back any salesmen's commissions. It also eliminated the necessity of salesmen acting as collectors.

#### SALESMEN SHOULD SELL

It is the writer's belief that salesmen should have as little to do with collections as is possible and have as much time available for sales promotion as he has working hours.

Credit investigations were made on all accounts on our lists, prior to the salesmen starting to canvass. The results of these credit investigations were noted in our office files and also on a sales contact record card furnished to the salesman.

The results of our credit investigations thus enabled our representatives to call on an account and know how much he could sell to each account and know that when the order was sent into the office that there would be no delay for credit investigations. Those accounts on which no credit ratings were available, or upon which no sufficient for extending credit was able to be ascertained, were established on a C.O.D. basis.

Prior to the war, it was the credit manager's policy to make a trip once a year, either alone or with the salesmen of the territory involved, and contact as many of the customers as was possible. The advantage of this type of customer relationship is self-evident.

#### KNOWLEDGE OF CUSTOMER CUTS CREDIT LOSSES

Credit in the writer's opinion is 90% will to pay and 10% ability to pay. The knowledge acquired by this personal contact has permitted extension of credit limits in cases of this type of visit prevented the establishment of accounts that were unwarranted so that losses were held to a minimum.

In making customer calls our salesmen are furnished semi-monthly a sheet showing the status of all their accounts. This with their credit cards lets them know how much to sell to an account and permits them to ask for payment on account if new merchandise orders plus the outstanding balance exceed the limits set up by large amounts.

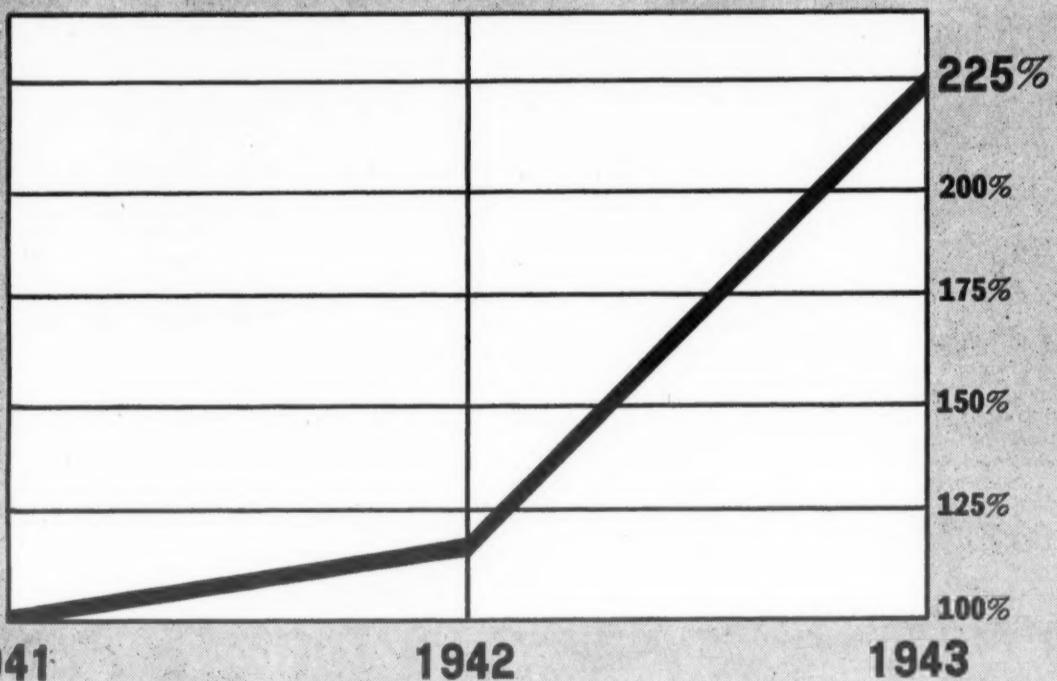
A master card good for two years use was devised for office records. This card printed on both sides in different colors was available for tabulating results for two years so that comparative results could be obtained. On this card a customer's name and address, his credit limits and paying habit were noted on the upper portion. The lower portion was divided so that daily sales could be entered from the daily sales reports which were furnished by each branch. All sales, whether cash or credit, are entered on the daily report sheet and then transferred to the master card.

#### SALESMEN KNOW STANDING

The green cards given to our salesmen carry the same credit information, but in addition have spaces to record the salesman's contact. This card was made up so that the date, party contacted, remarks or sales could be entered by the salesman. These cards are then turned into the office where entry to the master records was handled.

Each time a contact was made with an account by the salesman, a (Concluded on Page 19, Column 1)

## Alco Production of Refrigerant Valves Increases 225%!



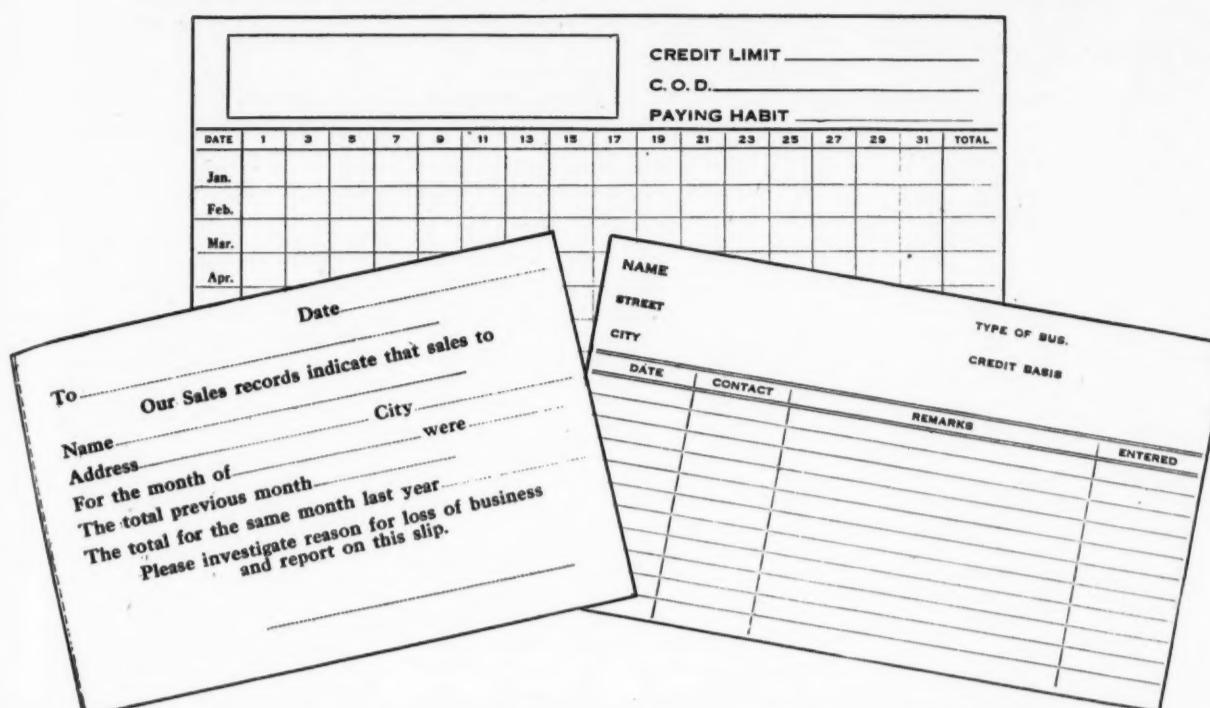
Designers and Manufacturers of  
Thermostatic Expansion Valves  
Pressure Regulating Valves  
Solenoid Valves  
Float Valves

The graph above illustrates the tremendous growth in the production of Alco Expansion Valves and Solenoid Valves alone during the past two years. Yet, in spite of more than doubling our output of refrigerant control valves, there are still not enough Alco Valves to meet civilian demands.

Even though the actual number of Alco Valves produced is greater than ever before, the steadily increasing demands of the Army, Navy, and Maritime Commission continue to absorb practically our total output.

However, at present production rates, more valves should soon be available to fill essential civilian needs.

## These File Cards Help Eliminate 'Bad Debts'



"Bad debts," the ruination of many businessmen, are no problem to Ted Glou's Central Service Supply Co., for the firm hasn't had a credit loss in seven years, thanks to carefully controlled credit records. Above are three important file cards used by Mr. Glou's credit department. On the top card is tabulated a two-year record of each customer's daily buying, as well as his paying habit. Note "Credit Limit." The card at lower right, which is carried by the salesman, contains credit information on the customer as well as space for recording every contact. Card at left is given the salesman whenever records show that sales to a customer are dropping or that no sales result from his calls, to remind the salesman to investigate.

### Extensive Promotion Plays Big Role in Producing Profits

(Concluded from Page 18, Column 5) diagonal line in red was marked in the square of the date on the master file card. Thus, at a glance one is able to see the sales records, the number of calls, and the results of calls indicated by these sales figures.

If this card shows that sales are dropping, or no sales are resulting from salesmen's contacts, the salesman is given an investigation slip requesting to furnish the office with certain information. A duplicate is kept until the original is returned. This slip contains the name of the customer, the amount of sales for the month, and the total of the previous month and the total for the same month for the previous year. After contacting the customer on his next routine call, the salesman reports the reason for the loss of business.

If the lack of business is because of the customer's business failing off our salesman tries to help the customer recapture or build up his business. On mail order accounts or others not contacted by the salesman, this follow up is made by the office, first by letter, and if no reply is received, telephone contact is made with the customer.

Our sales promotional efforts have been many and varied. Those bringing in the best results were retained. From our inception we have used a

addresses asking that we continue to send the bulletin to them. Each time the bulletin was mailed, a suitable advertising piece advertising a particular product was included.

Advertising in the AIR CONDITIONING & REFRIGERATION NEWS and "Refrigeration Engineering" have brought inquiries from all over the United States. Our salesmen try to make contacts at least once a month. This routine, however, has been disturbed due to tire and gasoline rationing. Sales and engineering help when necessary are furnished to the customer.

To make it easy for mail orders to be sent in, out-of-town customers are furnished with "Rush Order Books" requiring no postage by the customer. Each order card is a postage-paid postcard.

As a sales and advertising promotion, we developed a carton for packaging copper tubing. We found that many people after opening a coil of copper tubing had no place to put it. As a result, it became damaged and dirty. A heavy corrugated container for each size was made by a local container company and a label placed on the outside of each package. This created much interest and favorable comment, not only by our customers but several of the manufacturers having seen this package have this method of distribution of their tubing products under consideration for postwar.

#### APPEARANCES COUNT

Our offices and display rooms are kept as attractive as possible and window displays are changed frequently. This constant window dressing attracts attention from refrigeration people and others.

To the question of how much personnel is required to do the things outlined other than the sales force, two clerical workers can handle all of our office routine. One outside salesman, one inside salesman, and one assistant can handle all the work involved in handling inventory replacements and shipping of all orders.

This personnel is based on handling a volume from \$75,000 to \$100,000 annually. If the volume consists of large dollar units such as coils and compressors a much larger volume could be handled by the same personnel.

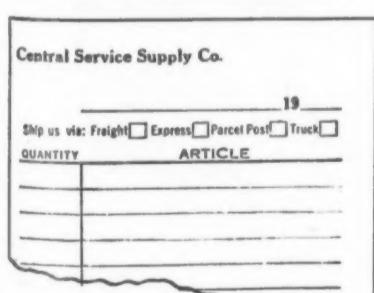
The inventory necessary to maintain adequate stocks of all items under normal conditions will run about \$100,000. Thus, a ratio of turnover to sales is 7½ to 10. Due to uncertain conditions of delivery in order to maintain good service a higher inventory is necessary.

Salesmen compensation is based on commissions against all sales of the branch. There are no "House Accounts."

In order to operate profitably mark-ups were set so that the overall gross ran about 27%. A budget of expenses was established based on the actual expenses after three years of operation. By keeping in line all expenditures, the following data is available at the end of each month: Inventory, sales, operating expenses, news bulletin or letter called "The Cessco Bulletin" which was mailed to all accounts at least once a month, sometimes twice a month. This bulletin in its early stages was in addition to an advertising piece, a news letter concerning our customers. It contained news about marriages, births, entertainment, outings of service organizations, changes of personnel, expansion, etc. During the war it has developed into a letter on priorities, the availability of materials, and other pertinent information. The popularity of this type of sales promotion was such that many men who went into service sent requests to us with their mailing

and profit. Due to our bookkeeping set-up these figures are available no later than the tenth of the month following, and in most cases between the third and fifth.

### For Rush Orders



This is a portion of the postage-paid postcard supplied to customers in booklet form to facilitate rush orders.



You've an army of assistants...

when you *Sell Servel\**

You don't have to fight your battles alone when you offer your prospects Servel condensing units. You can call on Servel's field and factory engineers to help you plan. You can draw on Servel's wealth of sales experience for proven methods. You can use Servel promotional material to pave the way for your salesmen. You will have accurate, authoritative guidance in solving your service problems.

Servel's field and factory force is thus the headquarters staff of your "army of assistants," but with you also is a great army of "volunteers." These are the thousands of satisfied Servel users in every community who are always ready to back you up in local selling. They are a powerful auxiliary force.

But that's not all. Every Servel dealer has another army of assistants outside the Servel organization. He has ready-made sources of accessories and fixtures of every type. "Servel-Powered" package goods and specialty items for every refrigeration field are at his fingertips in the "Allied Manufacturers Catalog." These Allied Manufacturers have their own staff of specialists who help the Servel dealer plan and sell in their particular field.

There may be a present or postwar opportunity open in your district. For details write Servel, Inc., ER&AC Div., Evansville 20, Ind.

\*Servel condensing units serve dealers and fixture manufacturers in every vital field:

1. Store Fixtures
2. Milk Coolers
3. Home Lockers
4. Beverage Coolers
5. Vending Machines
6. Room Coolers
7. Farm Freezers
8. Water Coolers
9. Industrial Cooling
10. Vehicle Refrigeration



## Army Refrigeration Problems

By P. B. Reed

Manager, Refrigeration and Air Conditioning Division, Perfex Corp.

### Control of Moisture In Refrigeration Units

One of the major causes of trouble with a compression type refrigerating system using sulphur dioxide, methyl chloride, methylene chloride or one of the "Freons," is the presence of water in the system. The service engineers most urgent concern is with the water freezing into ice at the orifice of the expansion valve or float valve or in the capillary, thus stopping the flow of refrigerant to the evaporator.

This is a fairly common occurrence in the service engineer's work and he goes prepared to cope with it. But the methods he uses to overcome the ice condition will be determined to a considerable extent by his knowledge of the other effects of moisture in the system in addition to ice formation.

If it were merely a matter of preventing the formation of ice in the expansion valve the service engineer would be free to put methyl alcohol or other similar agents in

the system, whose effects are to dilute the water by the alcohol to form a solution that does not freeze at the below-freezing temperature to which it is exposed in passing through the expansion valve orifice.

The formation of the non-freezing solution cures the ice trouble but it does not take the moisture out of the system and, even though the water is in a mixture with the alcohol, the water is still in the system and can continue with its other harmful effects that do not immediately make themselves known to the user or the service engineer, but which will, in time, be very destructive and may in time completely ruin the compressor and/or expansion valves and damage the evaporator, condenser and other parts of the system.

#### MOISTURE IN SO<sub>2</sub> SYSTEMS

It is generally known among service engineers that if moisture gets into a system charged with sulphur dioxide, the moisture combines with the sulphur dioxide to form sulphurous acid, which is similar to the more commonly known

sulphuric acid and which attacks the metals and other materials exposed to it. It corrodes the metals and quickly etches the finely finished surfaces of valve reeds, discs and seats, bearings, pins, needles, and in fact almost every part of the system with which it comes in contact.

If the "wet" condition is not caught quickly and the moisture removed the compressor may become "stuck" and it and the expansion valves, and control devices may be so completely ruined that they may have to be entirely replaced.

#### WATER FORMS ACIDS WITH THE HALOGENATED HYDROCARBON REFRIGERANTS

Service engineers who have worked on refrigerating equipment using sulphur dioxide have experienced these occurrences but neither they nor those who have worked only on equipment using methyl chloride, methylene chloride or the "Freons," may realize that moisture reacts with these latter refrigerants to form acids, hydrochloric and/or hydrofluoric, which, while perhaps not

usually as quickly destructive, can and do ruin a system just about as completely.

These acids attack the finely finished valves, needles, seats, pins, bearings, shafts, seals, etc. and the resulting corrosion is a frequent cause of discharge and suction valve leakage and compressor inefficiency. Lead or tin-lead gaskets are affected and corrosion of seal faces is a common cause of seal leak.

#### CORROSION MAY BE PRESENT EVEN THOUGH NO FREEZE-UP

##### AT EXPANSION VALVE

The service engineer will not ordinarily notice the entrance of moisture into the system unless enough water gets in to form ice at the expansion valve, but even though there may not be enough water in the system to cause ice to form there is enough to "hydrolyze," that is react with, the methyl chloride, methylene chloride, ethyl chloride or the "Freons" to form hydrochloric and/or hydrofluoric acid in sufficient quantity to be very damaging to the materials of which the equipment is made, especially those with fine finishes.

This is particularly true in air-conditioning systems in which the suction temperatures are above freezing—usually about 40° to 45°. There might be and very often is, a considerable amount of water in the system, resulting in the formation of a great deal of acid that causes destructive corrosion, and yet its presence may not be made known by "freeze-up" at the expansion valve.

#### ACIDS AFFECT OILS TOO

These acids attack oils, especially those less highly refined, causing the formation of sludges, (to stop up oil passages and/or cause discharge and suction valve trouble) detrimental to the lubricating value of the oil and the formation of "copper plating" which is the bane of existence of so many service engineers.

#### MOISTURE IN OIL IN LOW TEMPERATURE JOBS

In low temperature installations from -40° F. down there is sometimes a condition that appears to be a freeze up of the expansion valve

but which in reality is a stoppage of the valve due to congealed oil in the valve, which is the result of a slight amount of moisture in the oil. Putting on a good dehydrator of ample size more often than not restores the proper functioning of the valve.

#### EQUIPMENT IS DRY WHEN NEW

The equipment manufacturers are careful to dry out their equipment before they ship it. They seal it tightly and put in a small "holding charge" of refrigerant to prevent the entrance of moisture.

Use care in the original installation of the equipment and care in subsequent service operations to keep it dry. Pump a good vacuum instead of merely purging out the lines. Do not allow equipment or tubing to stand open longer than is absolutely necessary; seal soft drawn tubing lengths by pounding the ends closed until further use; swab out each length of hard drawn tubing.

In servicing do not open a cold evaporator on a vacuum; a large amount of moisture will be condensed in the cold coil; before breaking the connection balance the pressure to slightly above zero pound gauge. Use all other practical measures to guard against the entrance of moisture.

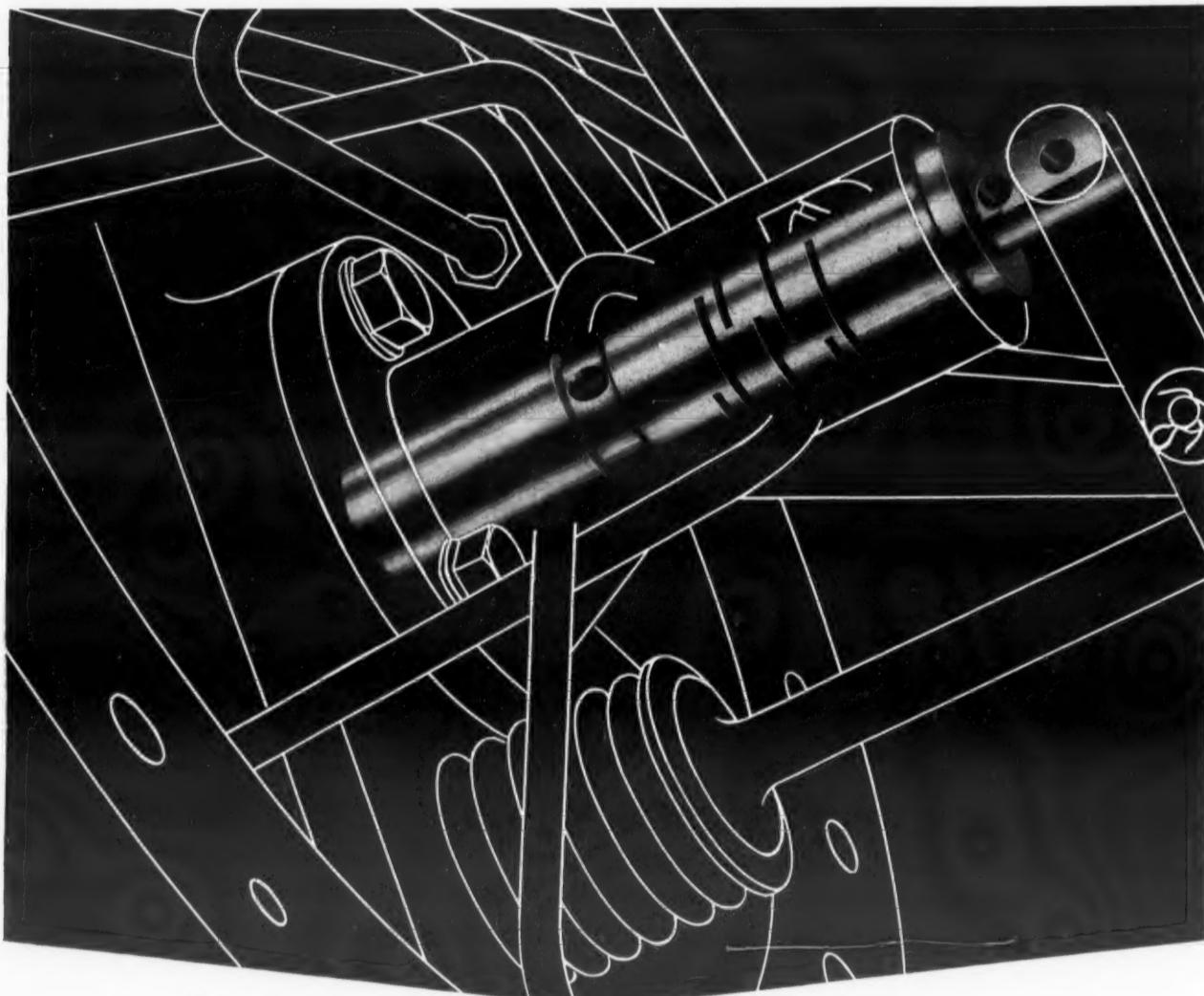
#### REMOVE MOISTURE BY MEANS OF A DEHYDRATOR

The metals in a system using methyl chloride, methylene chloride or the "Freons" should be bright and like new, if the system is kept clean and dry and contains only the refrigerant and approved oil. Darkened surfaces, the presence of sludge and corrosion indicates that there is water in the system.

Put a dehydrator of ample size in the liquid line, filled with any good desiccant such as silica gel, activated alumina or calcium sulphate (Drierite). Do not use calcium chloride as it may dissolve and be carried throughout the system; also it attacks certain types of bearings, seals and some types of oil.

#### USE CARE!

Care in keeping water out of refrigerating systems takes a little more time and effort, but it pays big dividends in money and satisfactory service.



## "NERVE CENTER" of Variable Capacity

A vital part of the Variable Capacity control mechanism of the Chrysler Airtemp Radial Compressor is an ingenious valve assembly, which serves as "nerve center" for the unit.

Movement of the valve stem, by suction pressure, opens or closes the slots in the valve sleeve and automatically shuts off or turns on the oil pressure to the individual compressor cylinders, thereby causing them to cut in or out.

Temperatures are held constant by the Chrysler Airtemp Variable Capacity Compressor. It responds instantly to temperature requirements for either one



or several different rooms. The number of cylinders operating, one or all, varies with load demands. This assures a very accurate and economical control.

Direct connected to the motor, operation is so free from vibration you can balance a penny on the compressor at 1750 R.P.M. Radial Compressor performance, plus Variable Capacity control, eliminates the peaks and valleys of short-cycling found with ordinary compressors.

There's a Chrysler Airtemp Heavy Duty Unit to fit almost every air conditioning and refrigeration need.

### Features

Automatic Variable Capacity Control • Unloaded Starting • Direct Connected • Simplified Installation • Non-Flexing Valves • Practically No Vibration • Interchangeable Parts • No Special Foundations Needed • Light in Weight

BUY WAR BONDS  
**CHRYSLER AIRTEMP**  
AIRTEMP DIVISION OF CHRYSLER CORPORATION • DAYTON, OHIO

"Packaged" Units 3 & 5 H.P.—Direct Expansion and Water Cooling Systems—Commercial Refrigeration

Tune in Major Bowes every Thursday, C. B. S., 9 p. m., E. W. T.

## THE NAME THAT MAKES THE DIFFERENCE



Davco Silica Gel . . . by Davison . . . gives you the results you expect from a drying agent developed by those who know your problems.

You get MAXIMUM CAPACITY . . . REMOVAL OF ACIDS AND CORROSIVE COMPOUNDS . . . FREEDOM FROM DUSTING . . . INSTANTANEOUS ACTION . . . true 100% drying agent performance.

And in addition, Davco Silica Gel is chemically inert and unaffected by oil. It is processed to assure large contact between refrigerant and drying agent . . . the hazard of "channelling" is eliminated.

Specify Davco Silica Gel from your jobber . . . in factory-charged dehydrators or for refilling.



THE DAVISON CHEMICAL CORPORATION  
Progress through Chemistry

BALTIMORE-3, MD.

Canadian exclusive sales agent for DAVCO SILICA GEL: CANADIAN INDUSTRIES LIMITED  
GENERAL CHEMICALS DIVISION

## Canadian Locker Association May Move To Set Up Standards

### Failure To Act Might Bring Government In

TORONTO, Ont., Canada—Need for standardization of locker plants was stressed by speakers at the first annual meeting of the Ontario Frosted Food Locker Assn. in the King Edward Hotel Jan. 19 and 20, as well as necessity of a fuller program aimed at educating the public on the benefits of food lockers.

William Kennedy, sales manager, Frigidaire Co., Leaside, Ont., warned delegates provincial government inspection of plants undoubtedly will be more rigid after the war. If plants failed to meet requirements, the government would be forced to step in. Kennedy said complete cooperation of the entire locker industry in Ontario is necessary.

"We should solicit those not in the association," he said, "and get together so that the government will accept our standards."

R. H. Chambers, president, General Merchandise, Ltd., Toronto, reported on meetings of OFFLA officials regarding standardization of prices. Chambers said it had been decided to operate on two cents a pound for processing and \$8 a year for locker rentals, but that the Wartime Prices and Trade Board (Canada's OPA) had wanted additional information before okaying these rates.

To meet the WTPB request, a questionnaire had been sent out to the 77 association members. Returns had indicated, said Chambers, that amount of processing done in Ontario is not high; that it averages only 150 pounds per locker yearly compared to the 300 average in the United States. Some plants, he said, are losing money and the only way the entire industry can be put on a paying basis is to standardize.

Chambers informed delegates of a successful special service inaugurated at his plant. Contents of all lockers are checked periodically to see that food is not allowed to remain too long. Since customers aren't always aware of what they have on hand this service is appreciated.

C. W. E. Wright, Wright Piano Co., Strathroy, Ontario, said that in

recent talks with men in the American industry he had received estimates ranging from 250,000 to 3,000,000 on the number of home freezers likely to be sold after the war. All had agreed, however, as to the types which would be manufactured. It was also agreed that the best seller would be a home locker of from 6 to 12 or more cubic feet, kept at zero temperature.

Officers elected: president, R. H. Chambers, Toronto, General Merchandise, Ltd.; vice-president, J. E. Shaw, Brampton, Peel Seed Grower Co.; membership committee chairman, V. Esser, Welland, Welland Provision & Cold Storage; educational committee chairman, J. Vidit, Exeter Frosted Food Lockers; treasurer, Harry Parish, Toronto, editor "Canadian Refrigeration."

### First Long Island, N. Y.

#### Plant Is Big One

WESTBURY, Long Island, N. Y.—First locker plant on Long Island is being constructed here by Country Life Frozen Foods, Inc., and will house from 1,500 to 2,500 lockers, it was said.

The plant is expected to be in operation by the middle of March, and will consist of a series of buildings to handle slaughtering of livestock and poultry, curing and smoking of meats, quick-freezing of fruits and vegetables, as well as locker storage facilities.

Each locker will be of 5.3 cu. ft. capacity, sufficient to hold 250 pounds of frozen fruits and vegetables or 400 pounds of meat. Locker rentals will vary from about \$22.50 for those on lower levels to \$17.50 for lockers on upper levels.

Charge of 3 cents a pound will probably be asked for dressing beef, while cost of having a hog butchered into hams, bacon, pork loins, etc., will be about \$15.

## DON'T Sell Short—The New Victory Garden Crop

There will be more Victory Gardens this year and the need for storage space will be greater. Do your bit by planning NOW to make available every inch of space you can with the modern

### MASTER FOOD CONSERVATOR

It not only gives you more for your money but meets every requirement of modern locker operation. Sturdily built—clean—sanitary—moisture resistant—no air wipe and many other desirable features.

#### Order Today

Write, phone or wire your order. Equip once and for all with the MASTER—the first cost, last cost locker.

Endorsed by and sold through distributors of refrigeration and insulation.

**Master Manufacturing Corp.**  
121 Main St.  
Sioux City 4, Iowa

Member of Frozen Food Locker Manufacturers and Suppliers Ass'n organized for your protection.

Over 400,000 Master Food Conservators in Use

## Syracuse Operator Finds Big Demand As Complete Service Is Offered

HOMER, N. Y.—Stuart Mann found the public only lukewarm when he opened his 200-locker Frozen Food Service locker plant here in November, 1941, but now there's a long waiting list of would-be patrons despite Mr. Mann's having added 730 more lockers to make a total of 930.

Mann spent four months back in 1941 and 1942 trying to rent lockers to the apathetic citizens of Cortland county. People apparently just didn't understand the advantages of having a locker. The Frozen Food Service plant was one of the first in the community, and the public needed educating, Mann discovered.

Early in 1942, however, Mann added 170 lockers to meet the rising demand, and soon followed with another installation, this time a 100. In June of 1943 he put in 460 more.

Each locker has a capacity of 200 pounds, so that the filled lockers can hold a total of 186,000 pounds of produce consisting of meats, fruits, butter, poultry, and similar products.

Carrier refrigerating equipment serves three individual operations in the plant—the chill and age room, which is held at 34° to 36° F.; the quick freeze room, held at -10° to -12° F., and the locker room, maintained at 0° F.

There are two types of lockers. One is the two-drawer type renting for \$14 a year. The other is of a door type and rents from \$11 to \$12 a year, depending upon location, height from floor, etc.

The locker plant is open to the

public from 8 a.m. to 6 p.m. so that patrons, with their own locker keys, can come and go to suit their convenience.

Complete meat processing service is made available to patrons of the locker plant. Meat is brought to the chill and age room as soon after the kill as possible. It is hung on hooks and remains in the room a definite period of time to permit cooling and aging. For pork 12 to 24 hours cooling is required. For beef, one to three weeks is required, depending upon the fat covering.

After chilling and aging, the meat is cut by the operators of the plant, wrapped, labeled, and taken to the quick freeze room, where it remains over night. The following morning the packages are transferred to the lockers.

### Applesauce Available In Quick-Frozen Form

NEW YORK CITY—Quick-frozen applesauce has just been put on the market here by Frosted Foods Sales Corp. under the Birds Eye trade name. The pound package is not rationed, while canned or bottled applesauce requires 16 points per pound.

Unsweetened, the frozen applesauce thaws in three to four hours at room temperature, or six to six and a half hours in a refrigerator, it is reported.

## Canadian Firm Seeks Data on Storage Plant

TIMMINS, Ont., Canada—Plans for the erection of a modern cold storage and locker plant have been completed by the newly organized firm, Northern Frosted Foods and Cold Storage, Ltd., with temporary offices Room 6, 3 Pine St., North Timmins, Ont.

The new plant will be 60 x 80 feet, two stories high with full size basement. Construction will be of tile with steel framework. Five hundred lockers will be installed on completion of the building and space provided for an additional 500 to be installed later. The remaining portion of the building will be used for the public storage of foodstuffs.

Refrigeration equipment, lockers and accessories have not yet been selected, and the builders are seeking information on this type of equipment.

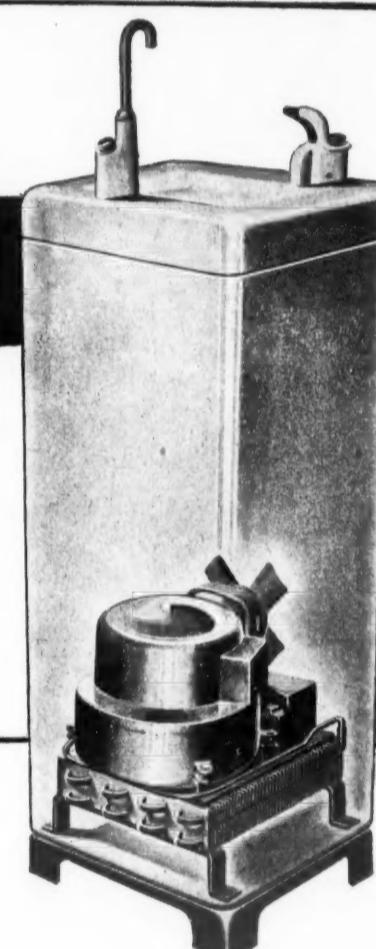
For TRUCKS, LOCKERS, COOLERS,  
COUNTERS, CABINET CONVERSIONS,  
use:

**KOLD-HOLD  
PLATES**

KOLD-HOLD MFG. CO.  
LANSING, MICH., U.S.A.

### \*ALL-PURPOSE ENGINEERING

... in Universal Cooler Post-War Hermetic Refrigerating Units will set New Standards of Adaptability and Performance



Apparent at once is the unusually low, compact, modern design of the new post-war hermetics by Universal Cooler. Not visible to the eye, but vitally important, is the All-Purpose Engineering\* built into these outstanding refrigerating units.

Designed to perform more efficiently . . . to meet a wider, more versatile range of requirements than ever before . . . Universal Cooler's complete post-war line includes basic, field-tested models which can be exactly tailored to your requirements, whatever they are.

#### "Let's Ask Universal Cooler"

At Universal Cooler, greatly expanded testing and research engineering staff and facilities are at your service . . . now. You are invited to "make our plant your laboratory" . . . to bring us your refrigerating problem in its entirety. Write today for the book, "Refrigeration Is Our Business," which gives a complete picture of Universal Cooler Engineering and Production facilities!

**ALL-PURPOSE ENGINEERING**  
is the art of making a thing in simplest form for the widest possible range of applications and/or conditions.

Example: In the Arctic, rubber packing for shock absorber struts on U. S. Army planes froze and cracked, but leather worked fine. In the tropics, rubber was OK, but leather was unsatisfactory. So Army engineers designed a combination rubber-leather packing that performs satisfactorily anywhere in earth. That's ALL-Purpose Engineering!

In refrigeration, Universal Cooler leads the field in applying All-Purpose Engineering.



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WE SELL TO MANUFACTURERS ONLY

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# Twin Cities Council Prepares Facts on Servicemen Deferment for Local Boards

## Letter Gives Facts and Figures on Essentiality, Outlines Procedure For Boards To Follow

### Graphic Picture Given of What Happens to Service When Experienced Repairmen Are Called Up

MINNEAPOLIS-ST. PAUL—Comprehensive "background material" to help Local Selective Service Boards in their consideration of the draft status of refrigeration servicemen has been prepared by the War-Time Refrigeration Council of the Twin Cities.

The War-Time Council was organized to carry out the program of the National Refrigeration Manpower & Training Program in this area. A Committee on Personnel and Training was set up in accordance with the suggestions outlined in the "guide" published by the National Director, and this committee investigated carefully the possibilities of obtaining further deferments for experienced refrigeration servicemen. In a report to the Council of the Twin Cities the committee said:

"Discussions with officials of the War Manpower Commission and Selective Service indicate:

"1. That there will be no 'blanket' deferment for the industry.

"2. That in no case will individual deferments be made on an indefin-

itely extended basis, or with much likelihood of continued renewals.

"3. That in spite of Selective Service Memorandum 115-B to local boards providing for deferment consideration for critical industries such as ours, THERE IS NO GUARANTEE THAT THE BOARD WILL NOT INDUCT THE MAN EVEN AFTER GOING THROUGH THIS PROCEDURE.

"It would appear, therefore, that our best possibility of obtaining deferment consideration is by making each local board aware of the situation our industry faces, and what we are planning to do about training replacements.

"To that end, we have prepared a letter to be sent to the local board in each case brought to our attention.

The complete text of the letter to be sent to local boards is hereby presented as background material for your determination of the Selective Service status of such Refrigeration Equipment Repairmen as yet remain in the industry's ranks here in the Twin Cities.

### Model Letter on Deferments:

WAR-TIME REFRIGERATION COUNCIL OF THE TWIN CITIES  
Minneapolis-Saint Paul

MEMORANDUM TO: Hennepin and Ramsey County Selective Service Boards.

SUBJECT: Basis upon which deferment is requested for men engaged in critical occupation listed as "Refrigeration Equipment Repairmen, Gas or Electric, All Around."

Gentlemen:

In presenting the facts and reasoning which follow, this committee has made a sincere attempt to place itself collectively in the position of you gentlemen of the Selective Service Organization, and has tried to include only such data as we ourselves would consider pertinent were we serving in your capacity.

With this to guide us, we believe there are three things you would like to know as background material for your determination of the Selective Service status of such Refrigeration Equipment Repairmen as yet remain in the industry's ranks here in the Twin Cities.

The first of these points is "What is the actual need for the service these men render and what part, if any, does it play in helping to win the war?"

The second of these points is "What is the replacement problem involved when a Refrigeration Equipment Repairman leaves the industry through Selective Service or otherwise?"

The third and last point is "What steps, if any, are his employers taking to meet such an emergency?"

In answer to point No. 1, we are listing below as briefly as possible the actual facts regarding the need for refrigerator repair service in the Twin Cities and direct suburbs of both.

1. There are approximately 159,875 domestic electric refrigerators in service in this area. This means that somewhere between 70 and 80% of our homes in this area are wholly dependent upon this type of equipment for home food preservation. It naturally follows that even a partial breakdown in repair facilities might conceivably result in seriously hindering the local war effort in two ways. One of these is through waste of valuable food as a result of spoilage, and the other is through sickness and disease resulting from rapid bacterial growth in food improperly refrigerated. It is well to bear in mind that when electric refrigeration equipment fails to function it must be immediately repaired for ice cannot be substituted as a refrigerant for standby purposes because the cabinets are not so constructed.

2. In addition to the above equipment, there are several additional thousands of refrigerator units in what is known as commercial installations. The people of our communities depend upon the following for their supplies of food and for other public health needs. Each of the concerns listed employs one or more electric refrigeration units, and many of them have a number of units in service at each place of business:

1375 Retail Grocery Establishments employ refrigeration equipment to store perishable foodstuffs, especially dairy products.

64 Wholesale Distributors of food products whose refrigeration equipment must be serviced promptly to avoid wastage of large quantities of food through spoilage induced by improper refrigeration.

454 Retail Meat Markets employ mechanical refrigeration equipment to preserve their stocks of meat and prevent spoilage. These important users of refrigeration must be assured of prompt mechanical service in the event of failure of their equipment.

42 Wholesale Distributors of Meat are in the same category as the above except that refrigeration service is the more important due to the larger quantities of meat in storage under refrigeration.

946 Restaurants and Other Eating Places in this area are absolutely dependent upon mechanical means for refrigeration to prevent food spoilage and consequent waste, as well as to avoid possibility of food

poisoning through the serving of tainted food. (Note: During the summer just past many hundreds of cases of food poisoning throughout the nation in war plants and other industries were reported in the press; in most cases this was traced by public health authorities to improper food preservation resulting from the failure to render promptly the necessary repair service to inoperative refrigeration systems).

57 Dairy Concerns in the Twin Cities area are dependent upon our industry for repair service in the event of failure on the part of any of their many refrigeration systems.

601 Retail Drug Establishments, most of whom depend upon mechanical means for refrigeration to preserve certain vital drugs and serums. This equipment must be maintained in proper operating condition as a public health safeguard. (Note: There are many other refrigerator units in hospitals and doctors' clinics and offices regarding which there are no definite statistics, but each one of which must, as a public health measure, be assured of proper repair service in event of equipment failure.

Conclusion: In the normal prewar

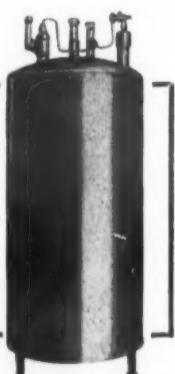
Although as above stated, there were about 210 such repairmen in this area in 1940, there are now remaining about 120, 90 having been sent, the NEWS believing it to be

(Concluded on Page 23, Column 1)



• These dry expansion water coolers are designed especially to meet the increasing demand for cooled recirculated water in air conditioning systems of the indirect type. Shell and tube construction. They require but a small refrigerant charge. Thermostatic expansion valves simplify refrigerant control. Non-freeze. They are today supplying excellent service in hundreds of installations. A full range of capacities. Write for complete information and price list.

**ACME INDUSTRIES**  
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#### HI-PEAK WATER COOLERS

Where instantaneous high-peak delivery of cooled water is desired, Acme remote type water coolers assure ample reserve volume on demand at all times. Shell and coil construction, coils are properly sized to insure against excessive refrigerant pressure drop. Storage capacities: 12 to 168 Gal.—Write for Catalog No. 25.

#### ACME PRODUCTS

Write for Catalog on any item

Evaporative Condensers  
Forced Convection Units  
Ammonia Condensers  
Freon Condensers  
Heat Exchangers  
Pipe Coils



Flooded Water Coolers  
Hi-Peak Water Coolers  
Dry-Ex Water Coolers  
Heat Interchangers  
Oil Separators  
Liquid Receivers



#### Specification sheets

### FOR THE AMCOIL FOOD CONDITIONER

Now that the Amcoil Food Conditioner has passed its "final examinations" . . . has proved its efficiency in performance tests approximating actual service conditions . . . American Coils Co. is ready to release complete details on this unit. Specification Sheets giving full information are now available and will be sent on request to those interested in equipment for the storing of perishable foods.

This new, war-seasoned Amcoil product is a versatile, compact food conditioner that automatically controls moisture as well as temperature. It is designed especially for the walk-in box and incorporates engineering features that permit easy adjustment for varying quantities and classes of foods.

Also ready in a short time will be Specification Sheets on the other Amcoil products which include All Service Cooling units (8 models); Condensing Unit Housing (3 models); and the Comfortaire Conditioner (4 models).



**AMERICAN COILS CO.**

25-27 LEXINGTON STREET • NEWARK, N. J.

## Letter To Draft Board Gives Pictures of Replacement of Manpower Problems

(Concluded from Page 22, Column 5) lost to war plants and to military service. By increasing the work almost to the limit of human endurance and through more efficient dispatching, this nucleus of 120 men has been able in the year just past to care for the increased demand for commercial refrigeration service imposed by wartime conditions. Many firms already find it impossible to accept call for service on domestic refrigeration.

Our Committee feels that the present force of men has reached the limit of its powers to handle additional work, and is, in fact, facing a serious breakdown due to over-work, and the shortage of ordinarily available replacement and repair parts. The loss of any additional men through Selective Service or otherwise will most seriously affect the ability of our industry to serve the war-time needs of the community and may easily result in most undesirable consequences.

### EACH MAN MEANS 1,000 SYSTEMS

Assuming 210 qualified men were required in 1940 to handle the repairs and maintenance on approximately 166,000 domestic and commercial refrigerating systems, it follows that one man is capable of handling service on about 800 to 1,000 systems a year. Each man, therefore, that is lost from the nucleus organization that now remains and who is not replaced will result in approximately 800 to 1,000 systems being without adequate service during the peak season just ahead. This is indeed a serious situation to contemplate.

Now as to point No. 2—"What is the replacement problem involved when a Refrigerator Equipment Repairman leaves the industry through Selective Service or otherwise?"—Following is an enumeration of the angles of this problem:

#### WHEN MAN IS TAKEN—WHAT THEN?

1. Appeals to the U.S.E.S. show that no trained men in this category are any longer available in this area.

2. Unlike the automotive industry, we have no related business from which we can draw trainees. For example, the hundreds of thousands of filling stations across the country supply men and boys experienced at least in the minor repairs of the motor car as material from which competent shop mechanics may be trained. In our industry there is no such source of raw material upon which we can draw.

3. Most of the refrigeration equipment must be repaired in the field at the address where it is in service. This type of repairing requires a much more highly skilled mechanic than does any type of mechanical repairing which can be done in the shop, where the shop foreman diagnoses the trouble if it is not readily apparent and stands ready to lend a hand if the mechanic or trainee hits a snag on the job.

It is one thing to be able to repair a known trouble but quite another to be able to tell from outward signs just what the trouble is. The Re-

frigerator Equipment Repairman must have sufficient experience, skill and training to diagnose the trouble on the job as well as actually remedy it. Because of this, it generally requires several years of training and actual field experience to become a skilled Refrigerator Equipment Repairman.

4. For the reason that refrigerator equipment must be repaired in the field where it is in service, the type of man required is above the average of the ordinary shop mechanic. He must be of the type that can be entrusted with a service truck and complete complement of tools, equipment, and supplies. Few of us would care to entrust this equipment to a man who could not be depended upon to avoid the use of liquor during working hours, even though he might be on his own and out of the boss' sight from early morning until late at night. This is quite a serious problem in servicing equipment in the field, but on the other hand it is not a particularly important point in the recruiting of personnel for training in shop repair work, where a man is under constant supervision.

5. A Refrigerator Equipment Repairman, while not an engineer in the strictest sense of the word must, even so, have a certain amount of theoretical training before he can be fully skilled. A knowledge of chemistry and physics as well as electricity is essential especially as he is required to work with and handle such refrigerant gases as sulphur dioxide, methyl chloride, dichlorofluoromethane, and others. Some refrigerants are inflammable as well as explosive and corrosive, and represent a hazard to life and property if incorrectly or ineptly handled. Very few other repair men, to our knowledge, are required to possess such skill in the ordinary course of their work.

Conclusion: From the above, it may be readily seen that the replacement of men in the category of Refrigerator Equipment Repairmen presents a serious and unique problem and cannot be done under existing conditions except as a result of a slow training process.

Now as to the third point outlined at the start of this memorandum, "What steps, if any, are his employers taking to replace repairmen who may be faced with induction."

#### TRAINING PROGRAM PLANS TOLD

The Twin City War-Time Refrigeration Council has been organized expressly for the purpose of meeting the trained manpower shortage which faces the industry in this area. Principal among our purposes is the establishment of a replacement training program through the Council and with the aid of the War Manpower Commission's Apprentice Training Service.

Individually and collectively, we have endeavored to locate replacements through the U.S.E.S., but to no avail. We feel, therefore, that we have done and are doing all we can to help ourselves to adequately service the refrigerator equipment in this area. We are further of the

opinion that such of our men as now remain are serving the war effort at their highest skill and filling a need most important to the winning of the war through preventing loss of foods, drugs and serums through spoilage and through protecting the public health by reducing to a minimum the opportunities for food poisoning due to bacterial growth in foods resulting from inadequate refrigeration.

There are not definite figures as to the number of installations where refrigeration systems are used directly in manufacturing processes where war products are built, but we do know that there are a number of these and that all of them are dependent for maximum operation on the availability of prompt and skilled repair service.

#### REFERRED TO MEMORANDUMS

In conclusion, may be respectfully direct your attention to Selective Service System Local Board Memorandum No. 115, Subject: Occupational Classification Other Than Agricultural, Effective: Feb. 1, 1944. To quote Part 1, Paragraph 1, Line 4 . . . "Civilian functions necessary to war production and to the support of the war effort must be maintained."

Also Part 1, Paragraph 3, Sentences 2 and 3 . . . "The replaceability of the registrant may be based on various factors which should be considered carefully. There may be a shortage of men possessing the registrant's special training, qualifications or skill."

Also, Part 4, Paragraph 1, Sentence 4 . . . "The agencies of the Selective Service System are urged

to use the facilities of the United States Employment Service for information with respect to the occupations of registrants."

Also Part 4, Paragraph 4, including list of critical occupations, see Item No. 100, on Page 40 . . . "Refrigerator Equipment Repairman, gas or Electric, all around."

We wish also to quote for your consideration from Local Board Memorandum No. 115-B, Subject: "Registrants in Critical Occupations," from Paragraph 1, Sentence No. 4, . . . "It can safely be said that the critical occupations as listed by the War Manpower Commission (list attached to and part of Memorandum No. 115) represent the highest levels of skills within industry and that, therefore, all production necessary to the war effort is directly dependent upon the most efficient use within industry of persons qualified in these occupations."

Also from Paragraph 2, "Need for extending every consideration for occupational deferment to registrants in critical occupations. It is of the utmost importance that registrants

(1) who have the necessary qualifications, (2) who are utilizing them to the fullest extent in a critical occupation in war production or in support of the war effort, and (3) whose removal from their present employment would have an adverse effect upon maintenance of required production schedules, be given the most serious consideration for extended occupational deferment before being reclassified out of a deferred classification into a class available for service."

Also, from Paragraph 3, . . . "Referral to United States Employment

Service (A) local boards are directed that whenever, after the most careful consideration, they conclude a registrant who is alleged to be a critical occupation in war production or in support of the war effort is not entitled to occupational deferment on the basis of his present employment, to refer the registrant's name and present occupation, together with a statement of his skills and qualifications and place of present employment, to the local office of the United States Employment Service in the area in which the local board is located. (B) This reference is mandatory and will be accomplished in the following manner." (Here follows a complete summary of the manner in which the reference to U.S.E.S. should be made).

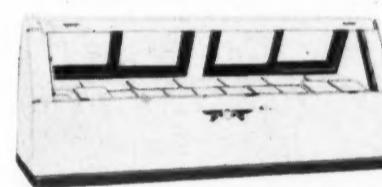
We have endeavored to confine ourselves to information pertinent to an occupation classified by the National Selective Service System as "Critical," and have attempted to establish a replacement program in accordance with available data from headquarters in Washington.

May we, in light of the above, and with special reference to our Training Program, request your special consideration of such deferments as may be in order for this occupational classification with the idea in mind that a six months' deferment, granted to any Refrigerator Equipment Repairman, between now and June 1, would enable us to retain the services of our present nucleus organization until the training program can get sufficiently far along to provide at least partial relief and enable us in the meantime to meet the mounting need for Refrigerator Equipment Repairmen.

## Looking for a new post-war Setup?



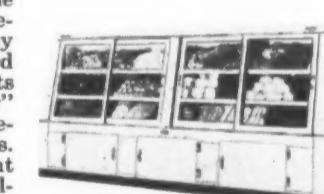
## SHERER BRINGS YOU A COMPLETE REFRIGERATION LINE



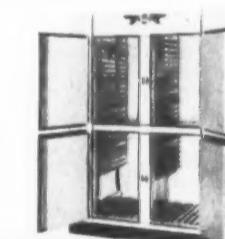
As a pioneer manufacturer of fine commercial refrigeration, Sherer will offer meat, delicatessen and dairy display cases ranking with the finest, at prices that will bring you profits and volume.



Sherer reach-in refrigerators, walk-in cooling rooms and dry bottle coolers have always been highly regarded by the trade, and extremely profitable for Sherer distributors.



Built for generous display and storage, the famous Sherer Vegetaire has for many years been a by-word with food merchants as a "builder-upper" of extra fruit and vegetable sales and profits. You will find that Vegetaire sells in volume at a substantial profit to you.



Sherer's Baker's Rertardo will take you into bake shops with a refrigerator specially designed to lower the baker's production costs, improve quality of his goods, and level out his production schedules. Here indeed is a money-maker for you.



BE READY—with SHERER FREEZERS  
Juicy steaks, garden-fresh vegetables, fruits, fish and wild game will be frozen in Sherer Freezers by thousands of Americans in farms, stores and rural homes the country over. These freezers, like other Sherer products will all be available when restrictions are removed. Many models, such as reach in refrigerators, vegetable and dairy cases, and walk-in cooling rooms, as well as the Sherer Distributor franchise, are available now! Write or wire for full details.

Besides this complete line, Sherer's refrigeration accessory department offers you condensing units, fin and blower type coils, valves, controls and other supplies.

Sherer regularly publishes an easy-to-read bulletin giving up-to-the-minute interpretations and working examples of regulations L-38, P-126 and others affecting the operation of your business. Write us asking that your name be placed on our Special Bulletin mailing list.

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IS THE OLD STANDBY FOR THE SWIFT, SURE PERMANENT ELIMINATION OF MOISTURE TROUBLES!

**ICE-X**

any place in the system... instantly eliminates ice at expansion valve... cannot cause any damage to refrigerant, oil or any of the parts of the system. Ice-X is the original, fully patented, liquid formula for dehydration.

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JOBBERS: WRITE FOR SPECIAL PROPOSITION!

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MARSHALL, MICHIGAN

## Servicing the G-E Refrigerator Line

### Complaints and Adjustments

#### Machine Will Not Run

Refrigerating machine does not start, or starts but does not continue running properly. The most common causes and corrections of "Will Not Run" complaints are listed below.

CAUSE	CORRECTION
I External conditions Power supply	Correct power supply
Overload device trips	Switch two-knob controls OFF, then ON
Load is excessive	Increase air circulation
II Electrical parts	
Control is inoperative	See Note below
Relay is inoperative	Replace relay
Capacitor is inoperative	Replace capacitor
Cord and wiring	Tighten loose connections Repair or replace wiring
Motor is inoperative	Replace Sealed machine Replace motor, if Open-type
III Belt (Open-type machines)	Adjust non-condensable gas
IV Non-condensable gas (CA & Open-type machines)	Adjust or replace belt
V Compressor is stuck	Jar or apply 220 volts Replace Sealed machine Replace compressor, if Open

Note: Inoperative controls on DR machines should be adjusted or repaired, if possible, rather than replaced. Inoperative controls on other type machines usually should be replaced.

TO LOCATE AND TO CORRECT CAUSE OF COMPLAINT, look for possible external cause and then test electrical parts. If electrical parts operate properly, other parts of machine should be examined. Tests and methods of correction are described in detail on following pages.

To determine the cause of a "Will Not Run" complaint, a number of possibilities must be investigated step-by-step until the cause is located by process of elimination. Then, correction usually can be made quickly.

**Cause I:** Conditions outside refrigerating machine which keep it from starting or cause it to trip off after it starts.

#### CORRECTION

1. Open cabinet door; if current is being supplied, cabinet light will come on.
2. If light does not come on or re-

EDITOR'S NOTE: This is the third of series of articles describing the servicing of refrigerators manufactured by General Electric Co. The series was prepared from the G-E service department's "Appliance Service Handbook."

frigerator has no light, connect a lamp or appliance to electric service outlet to test for current.

3. Switch control OFF, then ON to reset overload device on CA, Open-type, and early Scotch-yoke machines with two-knob controls and on DR machines.

This device trips off machine by breaking circuit when unusual load or power conditions exist. Recent Scotch-yoke machines with single-knob controls have an overload device which automatically resets itself and which is located in starting relay.

4. Provide adequate air circulation

(Concluded on Page 25, Column 1)

## Typical G-E Refrigeration Systems

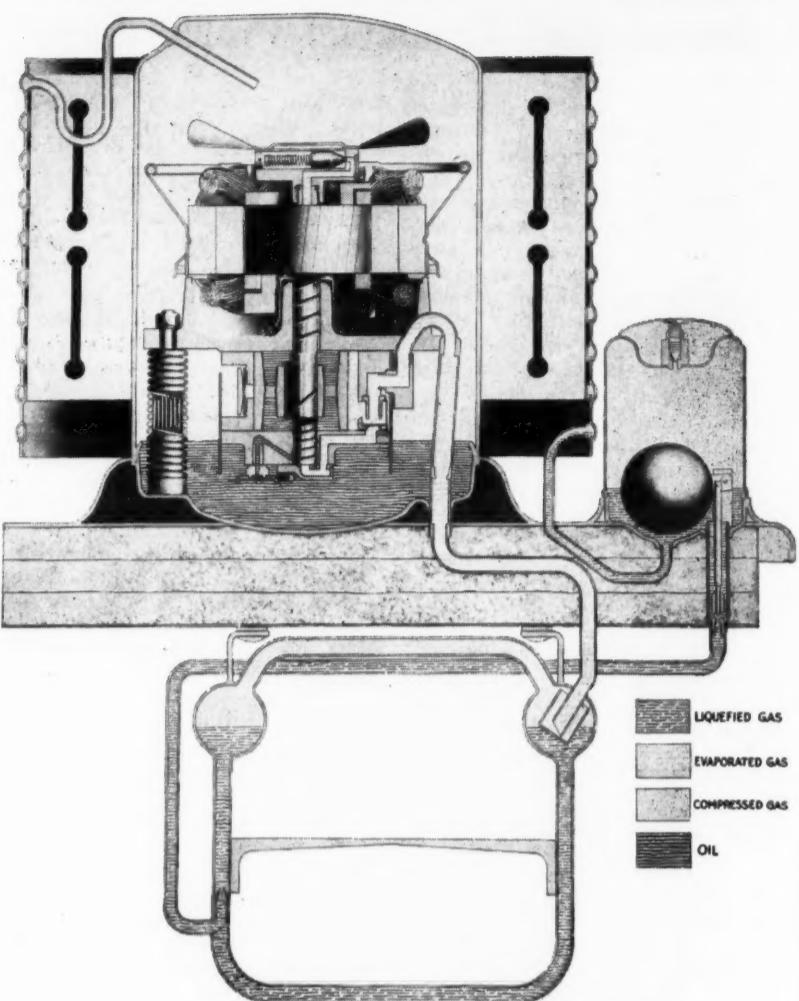


Fig. 17—Cross-sectional chart of Type CA machine.

## CF REFRIGERATING MACHINE

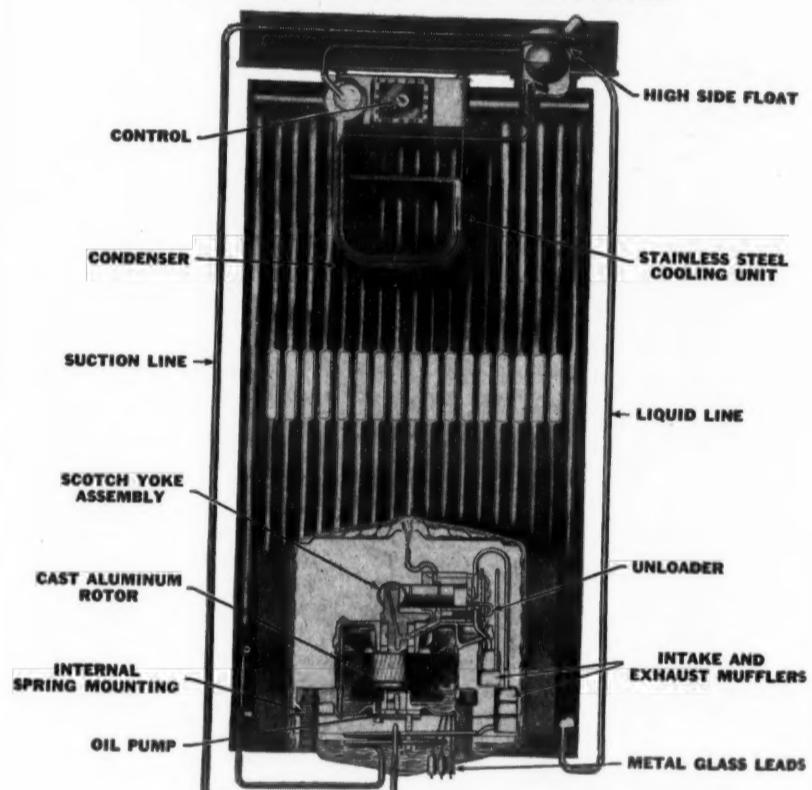
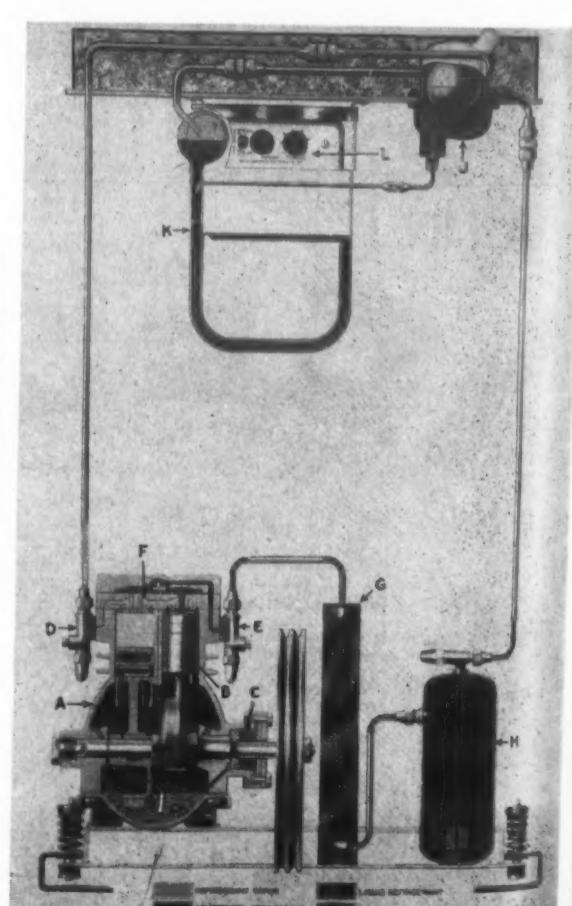


Fig. 18—Cross-sectional chart of typical Scotch-yoke machine.

Fig. 19—Cross-sectional chart of typical open-type machine with reciprocating compressor. Key to part: A, compressor; B, piston; C, shaft seal; D, suction service valve; E, discharge service valve; F, valve plate; G, condenser; H, liquid receiver; J, float valve; K, cooling unit; L, temperature control.



## Artic (DU PONT METHYL CHLORIDE) SERVICE NEWS

### WAR-TIME NEWS LETTER

Dear Sir:

Your cooperation during the past year has enabled us to serve you reasonably well with Methyl Chloride. We thank you for past help and count on you for the future. Working together will insure satisfactory service.

You will be pleased to know that the container situation is a little better. We are filling most orders promptly. But we don't have a stock of empties on hand, nor does it look as though we'll be able to build up a reserve which will permit us to ship all specified sizes of cylinders, unless the cylinder returns improve rapidly.

Some customers who refill many small cylinders are using the large drums containing 1200 pounds net of Methyl Chloride, gross weight 2500 pounds, where facilities for handling this large container are available. They find this method convenient, for it permits them to withdraw either gas or liquid without changing the position of the container. Shipment of one or more of these large containers can be made by truck to reasonable distances.

\* \* \* \* \*

The ASRE have had many good conventions, but the recent Philadelphia meeting was one of the best and largest. It featured excellent technical papers by leading refrigeration men, informative sessions, and outstanding speakers who discussed postwar prospects, merchandising programs and Government relationships. If you didn't get there, it will be well worth your while to read the detailed reports which are now being published in the trade journals.

Very truly yours,  
*Thomas Coyle*  
THOMAS COYLE  
Manager, Chlorine Products Division

BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

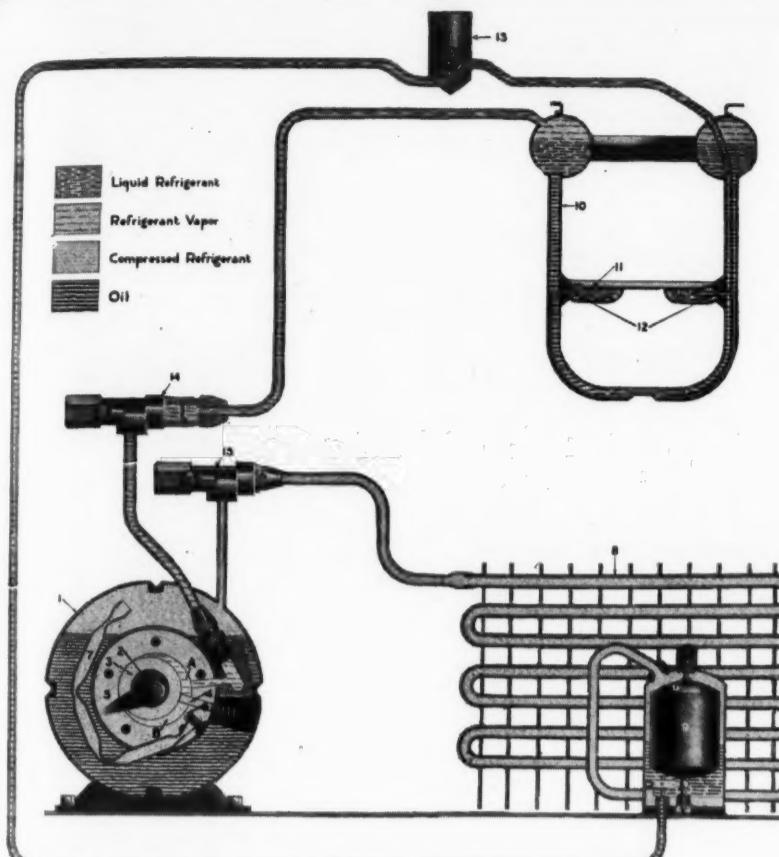


Fig. 20—Cross-sectional chart of typical open-type machine with rotary compressor. Key to parts: 1, compressor; 2, compressor shaft; 3, piston; 4, blade; 5, cylinder; 6, discharge valve; 7, acoustic filter; 8, finned tube condenser; 9, float; 10, cooling unit; 11, freezing shelf; 12, injectors; 13, throttling valve; 14, suction service and check valve assembly; 15, discharge service valve.

## Locating & Correcting Causes of Complaints

(Concluded from Page 24, Column 3)

to reduce compressor load on a machine that trips off.

5. Test for low voltage if overload device frequently trips.

a. Connect voltmeter across power line at electric service outlet.

b. Run special line to refrigerator if voltage at outlet is less than 100.

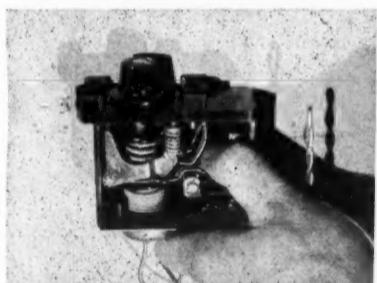


Fig. 21—Testing bellows.

Cause II: Electrical parts of machine are inoperative.

### CORRECTION: CA AND SCOTCH-YOKE MACHINES

1. Test control by eliminating it from machine circuit.

a. Remove control from machine.

b. Place a jumper wire across control terminals or connect leads together. (When control is connected to machine circuit with locking connector plug, insert bare ends of a looped jumper wire into plug from which control was disconnected). Control is now shorted out. If machine runs, difficulty is in control.

c. Remove control cover and examine bellows. When warm, bellows should exert considerable pressure. Push against bellows arm. If bellows can be compressed easily with fingers, it is weak and should be replaced.

d. Replace complete control when bellows is not found to be cause of difficulty.

2. Test relay by replacing it with another relay known to be good. An inoperative relay cannot be successfully repaired but must be replaced.

3. Test capacitor by eliminating it from machine circuit.

a. Capacitors are on following machines:

CE-34A CFS-1A  
CE-34M CK-30B, C, D, and some Form E  
CE-340A CK-35B, C, D, and some Form E.

b. Place a jumper wire across capacitor terminals or connect capacitor leads together. Capacitor is now shorted out. If machine runs, difficulty is in capacitor which should be replaced.

4. Test motor by removing relay

cover and watching relay action.

a. Hold relay base in its normal position and attach connecting cord to power supply.

b. If armature closes contacts and motor hums until overload device trips, compressor is stuck.

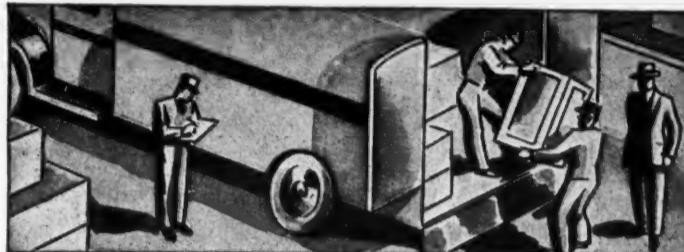
c. If armature fails to close contacts, current is not reaching motor or motor is inoperative.

d. Examine connecting cord and wiring for open circuit.

e. Replace machine if motor is inoperative.

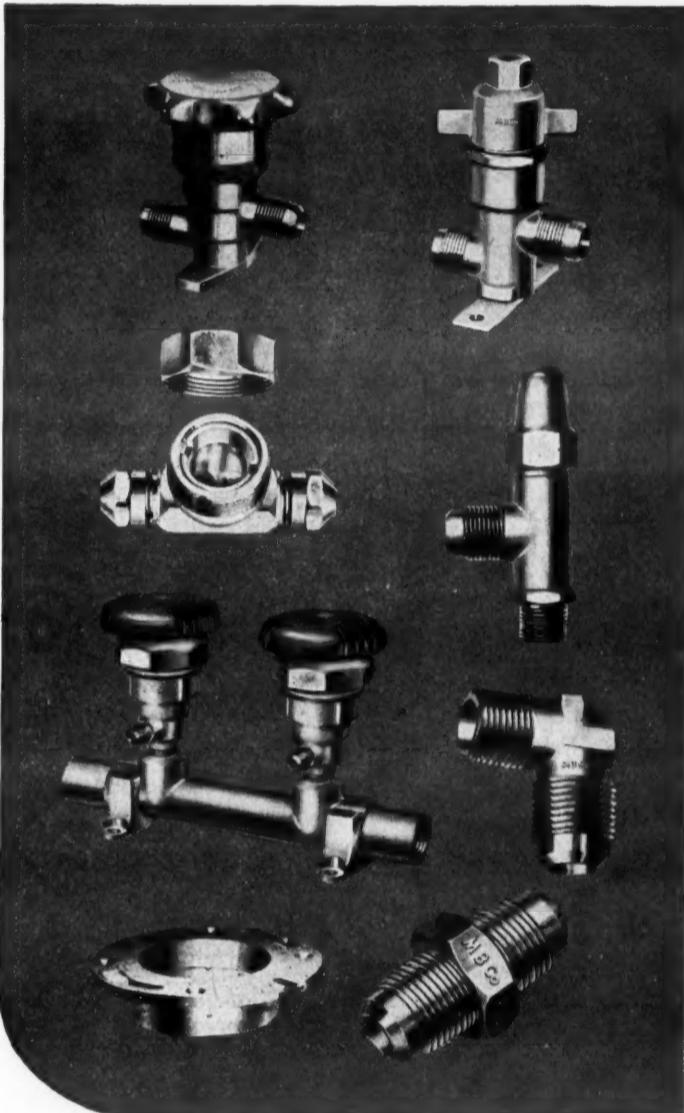
## 2,400 World War Veterans Return to Jobs at G-E

SCHENECTADY, N. Y.—Twenty-four hundred General Electric employees who entered the armed services since Pearl Harbor and have been honorably discharged from active duty, have been placed back into the working forces of the company. Gerald Swope, president, announced today. Records show there are still 39,236 of the company's employees in service.



## A REPUTATION FOR SUSTAINED

# DELIVERY



Although war time production and restrictions have necessarily made it very difficult to produce and ship goods to our customers at a rate approximating our peace time rate, we have managed to supply our customers with their essential requirements in reasonable time.

This condition does not prevail through mere chance. When the war broke out we made an extensive study of how we could best serve our customers within existing regulations. This, together with the fact that we are not dependent upon outside sources, but manufacture and control all the parts and operations of our products from the virgin metal to the finished goods, is largely responsible for our favorable position today. WE HAVE A REPUTATION FOR SUSTAINED DELIVERY.

Mueller Brass Co. refrigeration products are in use with our armed forces on practically every front. They are incorporated in units produced by other manufacturers who depend upon us for prompt service and quality products.

Service engineers can place full confidence in Mueller Brass Co. Valves and Fittings. Rigid laboratory control, skilled engineering, highest quality materials, precision workmanship and rigid inspection combine to make our products constantly dependable.

VALVES • FITTINGS • ACCESSORIES FOR  
REFRIGERATION AND AIR CONDITIONING

**MUELLER**  
**BRASS CO.**  
PORT HURON, MICH.

**POSTWAR PLANNING? ... Why Certainly!**  
BUT THE RELIABILITY OF THE MOTORS YOU NEED RIGHT  
NOW FOR WAR PRODUCTION IS IMPORTANT, TOO

**Sure,** we know that postwar planning is necessary. Every manufacturer must stay abreast of the times and be ready to again serve its customers after this war is won—but, Wagner realizes there is a war to win and it is our first job. Wagner is now turning out more motors than ever before—working around the clock to furnish

these motors wherever they are needed to help in the war effort. If you need motors now to help speed up the war effort—consult Wagner. • Write for Bulletins MU-183 and MU-182 which describe and illustrate the complete line of Wagner motors. Bulletins MU-7B and MU-30B give complete service instructions.

**Wagner Motors for Dependability**

**Wagner Electric Corporation**

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Wagner Splash-Proof  
Motor, 365 frame, two-  
speed, 1750/1160-rpm.

# Army Authority Explains Shell-Freezing Of Plasma, Considered the Best Method

PHILADELPHIA — New methods in the application of refrigeration for blood plasma and biologicals, particularly in the armed forces, were outlined by Lieut.-Col. Douglas B. Kendrick of the Walter Reed hospital, Washington, D. C., before the annual meeting of the American Society of Refrigerating Engineers here.

The experience gained from drying plasma in commercial laboratories and the preparation of frozen and liquid plasma in Army and Navy laboratories has contributed greatly to the knowledge of this problem and has raised many interesting questions in relation to refrigeration needs, Lieut.-Col. Kendrick stated.

The speaker reviewed the various types of equipment employed for drying might be presented and discussed. The equipment will be broken down into shell freezing machines and desiccating machines.

**Shell freezing equipment:**  
There is complete agreement by all concerned that plasma must be shell frozen to obtain the best dried product. By shell freezing is meant freezing the plasma on the inner surface of the bottle in such a manner that a shell or layer of plasma of uniform thickness is formed, leaving an empty cone or circular channel in the axis of the bottle, extending from the bottom of the bottle out through the neck.

In order to accomplish this it is necessary for the volume of plasma to be smaller than the volume of the bottle. As a rule the volume of plasma does not exceed three-fourths of the volume of the container, thus allowing a circular channel equal or greater in diameter than the thickness of the shell.

Shell freezing of plasma prior to drying is considered essential in order to provide for proper evaporation of

the moisture from plasma. By forming a shell, the surface area from which evaporation can take place is increased and when dried the plasma has a flaky appearance, and the interstices resulting from drying in this manner increase the speed of reconstitution with distilled water.

For proper drying a shell of uniform thickness is essential, otherwise there will be an irregular rate of evaporation which may result in melting and fusion of the plasma.

Shelling may be accompanied in a number of ways but usually it is done by rotating the stoppered bottles containing liquid plasma (300 cc. plasma in 400 cc. bottle) horizontally, from 2 to 8 r.p.m. in a cold bath, the temperature of which ranges from  $-50^{\circ}$  C. to  $-74^{\circ}$  C. The liquids most frequently used for this purpose are ethyl alcohol or methyl cellulose.

## THE "NECK" ISN'T FROZEN

Experience has shown that shell freezing may be carried out effectively with the bottle contacting the cold bath for only  $\frac{1}{8}$  to  $\frac{1}{4}$  in. in depth. In this way freezing of plasma in the neck of the bottle is prevented.

When plasma is frozen in the neck it reduces the diameter of the orifice and the drying time is increased since the escape of water vapor is partly a function of the diameter of the outlet.

When bottles are rotated in the horizontal position a better shell is produced than when rotated at a  $45^{\circ}$  or  $60^{\circ}$  angle because when the latter method is employed, plasma freezes in the bottom of the container, forming a thick button. When the button is thicker than the remainder of the shell it frequently melts slightly during drying and results in fusion or gumming of the plasma. When plasma is allowed to fuse it becomes denatured and will not go into solution normally.

An alcohol bath is considered to be better than methyl cellulose bath because of the noxious character of the latter. When shelling is done in a closed room the fumes from the methyl cellulose may be injurious, producing in the laboratory worker symptoms of methyl alcohol poisoning.

## ORIGINAL CONCEPT TOO LOW

The temperature of the shelling solution is an important consideration. The original concept that biologicals must be shell frozen at  $-74^{\circ}$  C. arose from the practice of using dry ice in alcohol which produced temperature at that low level.

Long after mechanical refrigeration, capable of yielding low temperature ranges on a graded scale, was available, it was still considered necessary to shell freeze biologicals at  $-74^{\circ}$  C. for the best results. The extensive experimental work on freezing plasma, done by Strumia, McGraw, and Reichel has disproved this contention.

The feasibility of shell freezing at a temperature range of  $-50^{\circ}$  C. to  $-60^{\circ}$  C. has been clearly established.

Refrigeration machines have been developed for maintaining shell freezing units at  $-74^{\circ}$  C. This equipment, consisting of two high stage compressors with propane on the low side and ethane on the high side, each side operated by a 2-hp. motor, has been used but it has not proved successful, first because the refrigeration capacity is insufficient, secondly because the ethane compressor frequently becomes fouled with oil, and thirdly because the expansion valve on the high side frequently becomes clogged by ice from water in the ethane gas.

## MECHANICAL UNITS NOW USED

The possibility of using higher temperature ranges for shell freezing has greatly simplified the use of mechanical refrigeration for this purpose. In several of the laboratories shell freezing is now being done routinely at  $-50^{\circ}$  C. to  $-60^{\circ}$  C. These machines are operated by either one-stage compressors using F-22 gas or two-stage compressors using F-12. At such temperature ranges plasma can be shell frozen in 15 to 25 minutes.

Various types of shelling pans:  
a. The type most frequently em-

ployed (Fig. 2—slide) consists of a well-insulated rectangular trough into which is placed a series of rollers or wheels so arranged that bottles can be rotated horizontally on them. The wheels, connected by a chain drive, are rotated by an electric motor. They normally turn at sufficient speed to rotate the bottles at 2 to 8 r.p.m. The trough is filled with alcohol to a height sufficient to contact the bottles for  $\frac{1}{8}$  to  $\frac{1}{4}$  in.

The alcohol is refrigerated either by carbon dioxide ice or by refrigerated coils. Shell freezing can be accomplished by maintaining the solution at  $-35^{\circ}$  C. to  $-50^{\circ}$  C., although the time required for freezing may be longer than when the bath is at  $-74^{\circ}$  C.

Due to the difficulty of keeping the solution at a constant temperature because of the heat introduced by continuously adding warm liquid plasma bottles to the shell freezer, the time required for shell freezing is naturally increased.

## SPRAYING PRE-COOLED ALCOHOL

b. Emery method: In order to maintain the shell freezing bath at a constant temperature and speed up shell freezing by increasing heat dissipation, a new method has recently been developed by one of the commercial laboratories. The principle of this method is to pre-cool the alcohol in a cold tank and then spray the cold alcohol under pressure over the bottles.

The shelling pan is built in the usual manner so that the bottles are rotated on metal cylinders. A cold tank, constructed of cold plates so that the alcohol comes in direct con-

tact with the cold metal, provides a pre-chilled bath maintained at  $-50^{\circ}$  C.

Pipes, with longitudinal slits connected to the cold tank, are arranged over the long axis of the bottles. The cold alcohol is then circulated through the pipes under 10 lb. pressure and is sprayed out through the slits so that the alcohol completely envelops the body of the bottle and then falls into the trough where it is drained by gravity back into the cold tank to be chilled and recirculated.

With this unit the lower portion of the bottles does not rotate in a cold bath of alcohol. Baffles are placed at each end of the bottles to direct the alcohol spray against the body of the bottle and thus prevent freezing in the bottom and in the neck.

This type of shell freezing machine operates efficiently on refrigeration produced by a 5-hp. driven one-stage compressor using F-12 as the refrigerant.

c. Cold air, vertical spin method: This method is a complete departure from the usual types employed. Each bottle of plasma is held in the upright position by three prongs attached to a disc which is connected to a movable axle. Each bottle is rotated separately at approximately 800 r.p.m. in a refrigerated chamber.

The chamber is allowed to cool to  $-50^{\circ}$  C. prior to starting and when the fan is on a temperature of  $-40^{\circ}$  C. is maintained. Cold air is blown against the bottles by a turbine type fan placed in the center of the container. The outside dimensions of the cylindrical refrigerated box are approximately 36x36x43 inches high.

The inside chamber is cylindrical with a diameter of about 28 inches.

(Concluded on Page 27, Column 1)

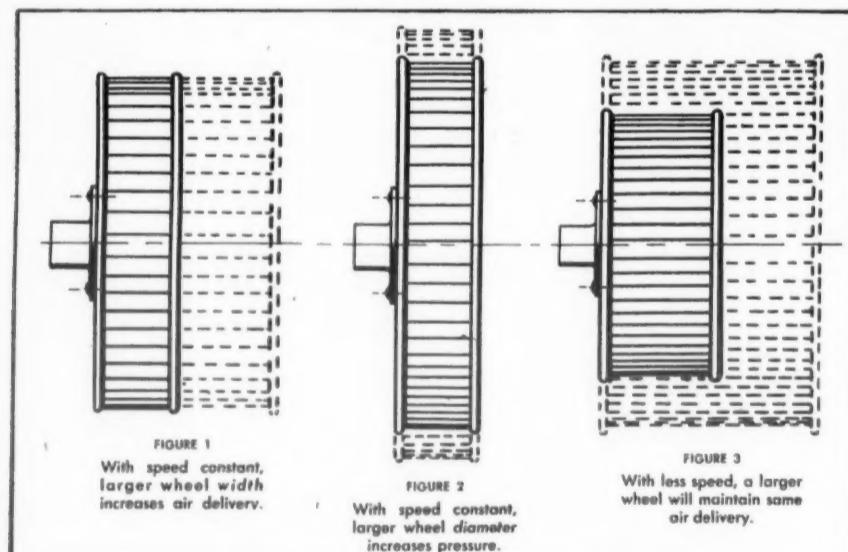
## OPPORTUNITY for REFRIGERATION FIELD SERVICE REPRESENTATIVE

Leading nationally-known manufacturer in refrigeration field has an opening with a real future for Refrigeration Field Service Representative. Must be familiar with both commercial and household applications, and experienced in making field trips as trouble-shooter. Should be able to handle field service correspondence with facility. In answering this ad, give complete details covering age, background, draft status and salary requirements. Replies held in strict confidence.

Address Box 1518 AIR CONDITIONING & REFRIGERATION NEWS

## Tips for Designing Air Impelling Units

No. 5 of a series



## What Size Blower Wheel?

THE following general rules will prove helpful in determining the choice of the proper size blower wheel for a given unit. Where motor speed is fixed: increase the width of the blower wheel to increase air delivery; increase the diameter of the wheel to increase the delivered air pressure (see Figures 1 and 2).

Where horsepower is limited: to increase air delivery, use a wheel larger in both width and diameter at low speed rather than a smaller wheel at high speed (see Fig. 3).

Where the wheel size is limited: to increase air delivery and pressure, increase the motor speed.

These are just a few of the many variables to be considered in the design of an air impelling unit. Design engineers and manufacturers of products using air impellers are invited to consult Torrington's Research Laboratory, preferably during the early planning stages. This consultation service may prevent costly changes and production delays.

The possibility of using higher temperature ranges for shell freezing has greatly simplified the use of mechanical refrigeration for this purpose. In several of the laboratories shell freezing is now being done routinely at  $-50^{\circ}$  C. to  $-60^{\circ}$  C. These machines are operated by either one-stage compressors using F-22 gas or two-stage compressors using F-12. At such temperature ranges plasma can be shell frozen in 15 to 25 minutes.

Various types of shelling pans:  
a. The type most frequently em-

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VALVES AND FITTINGS SINCE 1904

## Data Given on Equipment For Liquid Frozen Plasma and Various Biologicals

(Concluded from Page 26, Column 5)  
The chamber accommodates 24 bottles and shell freezes plasma in 45 to 50 minutes. This machine is operated by a 5-ton, two-stage compressor using Freon-12 gas.

Plasma, shell frozen in this manner, has a definite pattern and appearance. The centrifugal force produced by spinning the bottles at 800 r.p.m. holds the liquid plasma against the inner surface of the body of the bottle so that none of the plasma is frozen in the bottom or near the neck. In addition, plasma frozen while rotating at this speed has a different consistency and color.

When shell frozen in the usual manner, plasma appears amber in color and has laminations and striations which are visible microscopically. The laminations are due to partial freezing in layers while the striations are apparently due to the concentration of the salts and proteins as the water in the plasma crystallizes.

Plasma frozen by rotation at high speeds appears like a white powder and seems to be more amorphous than when rotated slowly. The salts and proteins are more evenly distributed.

Although several different methods have now been developed for shell freezing plasma, except for appearance the end product is the same. The solution time (time required for restoration with distilled water) and the clinical results are practically identical.

From the standpoint of efficiency and economy of operation an insulated metal pan, providing an alcohol bath mechanically refrigerated to maintain a temperature range of from -35° C. to -50° C., in which the bottles can be rotated mechanically, provides the most acceptable type of shell freezing equipment.

The source of low temperature refrigeration can be obtained very well by expansion of compressed Freon-12 gas in evaporator coils. Equipment of this kind can be operated on a small scale for a fraction of the cost of using carbon dioxide ice.

### Liquid Frozen Plasma

In the last five years wide experience has been gained in the use of liquid and frozen plasma. Since the introduction, in 1936, by Elliott, of equipment providing a "closed system" for the collection and processing of plasma it has been possible to store plasma in both the liquid and frozen state. A "closed system" which prevents the entrance of contaminants is essential for the preparation of sterile plasma.

Experience at the Army Medical School and the Navy Medical School has shown the feasibility of using wet plasma routinely. During the past three years wet plasma has been prepared by the Army and Navy and supplied to service hospitals throughout the entire country, thus conserving our supplies of dried plasma for use abroad where storage for several years may be required and where temperatures may be unduly high—well above 115° F.

It is felt that the experience gained by the services in the use of wet plasma will be of value to fixed civilian hospitals in this country in the postwar period. The lessons that have been learned point to the following conclusions:

1. Plasma properly prepared in a

"closed system," thus excluding contamination, can be preserved at room temperature and safely administered after 24 months' storage.

2. If plasma is to be stored in the liquid state it should be maintained at room temperature rather than at +4° C., because at lower temperatures fibrin precipitates readily, resulting in an undesirable product from an esthetic standpoint.

3. Plasma can safely be prepared from blood kept at room temperature. This method yields a very clear plasma.

4. Liquid plasma stored at room temperature loses its labile constituents (complement and prothrombin, helpful in wound healing) but retains the albumin and globulins intact. These latter constituents are essential for the treatment of shock and burns.

5. Plasma stored in the frozen state prevents almost completely any changes in the constituents of the plasma.

6. Plasma to be stored in the frozen state can either be "shell frozen" or frozen without rotation. There is no advantage in "shell freezing" plasma for storage in the frozen state.

### ICE CREAM CABINET OKAY

7. Commercially available ice-cream cabinets are well suited for freezing and storing plasma. The position of the bottle during freezing is of little importance.

8. The time required for freezing should not exceed 6 hours. However, freezing can be accomplished routinely in commercially available ice-cream cabinets in 3 to 4 hours. When the time required for freezing exceeds 6 hours the plasma has a tendency to be turbid rather than clear when thawed out. This turbidity does not prevent the use of the plasma but it is confusing to the clinician using it because it suggests the possibility of contamination.

9. Frozen plasma should be kept at a constant temperature, preferably between -10° C. and -20° C. If the temperature is allowed to rise slowly up to 0°, minute thawing occurs, resulting in the precipitation of fibrin. (Plasma is normally thawed rapidly in a water bath at 37° C. and in this way fibrin does not precipitate).

10. If plasma is thawed properly at 37° C. it can be refrozen, thawed and refrozen many times without apparent changes in the properties of the plasma. This is important because when power failures occur it is better to remove the plasma from the cold chest, thaw it and then refreeze it after the power has been restored.

11. The above findings make it possible to draw up definite recommendations to be followed by hospitals in preparing and storing plasma for use in their own institution.

a. Blood must be collected in a "completely closed" system.

b. The blood can be kept at room temperature or at +4° C., but the supernatant plasma should be recovered within 72 hours after the blood is collected.

c. The plasma should then be stored in a well-insulated, low temperature cabinet, maintained at -10 to -20° C., capable of freezing the plasma within four hours. Frozen plasma kept at a constantly low temperature can be stored indefinitely and the constituents will undergo very little change until it is thawed.

d. When plasma is required for use it can be removed from the cold chest and thawed at a +37° C. water bath in approximately 20 to 25 minutes. In order to have plasma available for immediate use it is good practice to keep three or four bottles thawed out and available in the operating room or emergency room of the hospital.

For the routine use of plasma in fixed hospitals the above plan for storage plasma is considered entirely satisfactory.

### PROBLEMS OF REFRIGERATION IN RELATION TO WHOLE BLOOD AND BIOLOGICS

Recently problems in refrigeration have arisen in connection with the needs for storing and transporting

whole blood and biologics which must be kept frozen, Lieut. Col. Kendrick pointed out.

It is desirable to make whole blood available to certain medical units in the active theatres of combat. In order to preserve whole blood and transport it without deleterious effects it must be maintained at a constant temperature of about +4 to +6° C.

Although electric current is available in most of the hospital units, when they are set up it is necessary to furnish additional power for the refrigerators when they are transported from one place to another. Therefore one of the requirements is a compressor which is capable of maintaining temperatures in the cabinet at +4° C. to +6° C. when plugged in to regular power lines and which can also be operated by a small generator which develops a third to a half kilowatt of power. These generators provide 110 volt, 60 cycle, AC current.

The refrigerator must be sturdy and well insulated so that the required temperature remains constant even when the box is used in climates where the outside temperature may rise to 130° F.

The refrigerated cabinet should be about 3.5 to 4 cu. ft. in size to accommodate 40 to 50 bottles of blood.

Experiments are now being conducted to determine the suitability of commercially available refrigeration cabinets and compressors to meet these requirements.

In addition to portable refrigerators for whole blood the need for low temperature cabinets to transport frozen biologics by airplane has also arisen.

Certain biologics, such as yellow fever vaccine, small-pox vaccine and other medicinals, are best maintained in the frozen state. It has been the practice to ship these biologics in the frozen state via airplane by packaging them in thermos type containers packed in carbon dioxide ice. However, delays in route, necessitating re-icing, and the lack of dry ice in most parts of the world make this an impracticable method.

### NEED BOX THAT WILL FLY

It is therefore desirable to develop a mechanical refrigerator capable of operating it -10° C. or below which conforms to the following requirements:

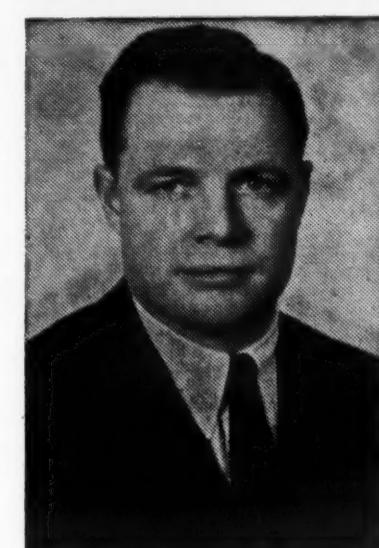
Due to the weight limitation on planes, even the large convoy type, it is desirable to have a box that weighs not over 80 lb. It should provide a storage cabinet about 1 cu. ft. in size.

Two motors are necessary for the compressor, so that it can be operated on 24-volt current in the plane and 110-volt current outside.

It is expected that a low temperature chest conforming to the above requirements might be developed by using one of the lighter metals for building the cabinet and the compressor. A light weight refrigerator of this design has application, not only for military use, but for use during the postwar period.

Commercial air lines will be operating all over the world and in order to provide good food throughout the entire trip it will be necessary to carry along frozen foods. Small, light weight, low temperature chests should be satisfactory for this purpose.

## To Expand Houston Firm

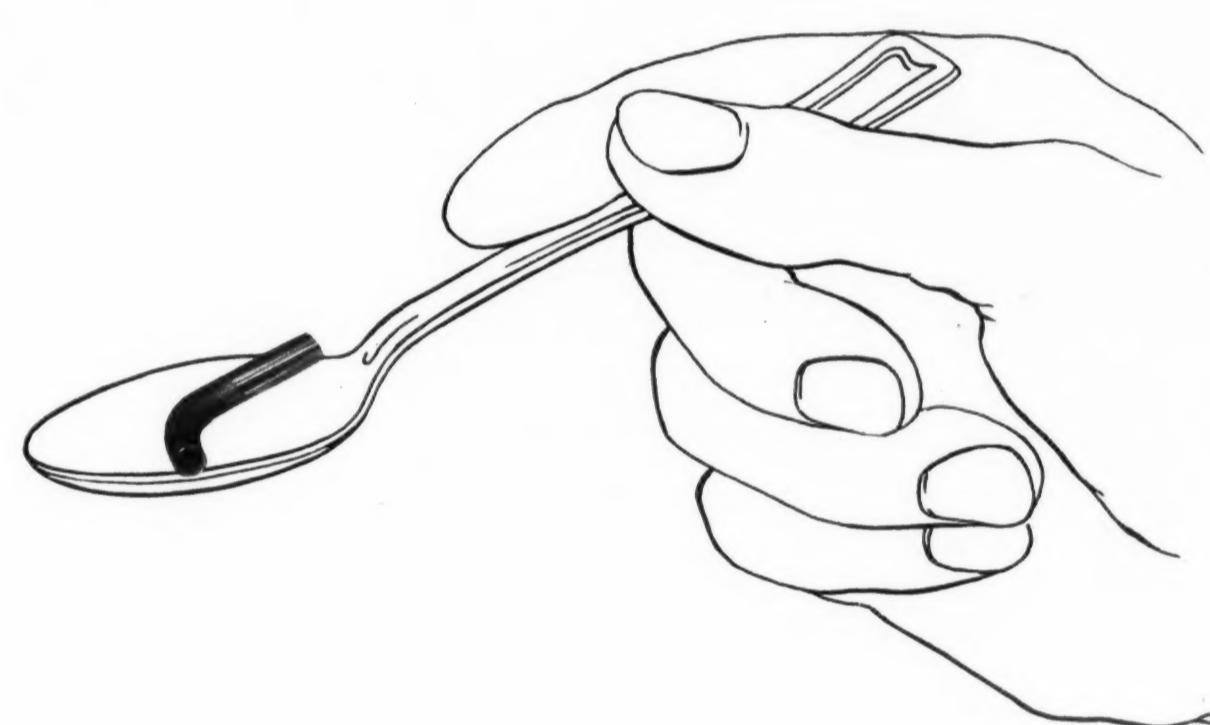


JAMES A. WALSH

HOUSTON, Tex.—J. A. Walsh & Co., Inc., is the new name of the former Air Conditioning Co. here, distributors and engineers, located at 3215 McKinney Ave. The change became effective Jan. 7.

James A. Walsh, who continues as the firm's president, stated that the change in name involved no changes in management or personnel but that capitalization has been increased to allow for post-war expansion plans.

It was stated that the chief reason for the name alteration with the fact that the old "Air Conditioning" name became outmoded as the firm added many more lines and services over and above its original air conditioning equipment exclusively.



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PROBLEMS OF REFRIGERATION  
IN RELATION TO WHOLE  
BLOOD AND BIOLOGICS

Recently problems in refrigeration have arisen in connection with the needs for storing and transporting



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ELECTRIC BOTTLE COOLERS. Brand new, streamlined. No priority required. Immediate shipment. 4½ case capacity. Self-contained with ¼-hp. Universal Cooler Corporation unit ready to plug in. Equipped with interior shelving and can be used as an 8 cu. ft. food refrigerator. Price \$105. GENERAL REFRIGERATOR CO., 855 N. Broad St., Philadelphia, Pa.

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WANTED TWO air conditioning and commercial refrigeration salesmen with proven sales record for immediate employment by commercial refrigeration distributor in Cleveland, Ohio. Company has excellent franchises, background and representative installations. A large quantity of used commercial equipment and priority business will allow good income while building up prospects for postwar activities. Salary plus commission. Apply Box 1513, Air Conditioning & Refrigeration News.

REFRIGERATION ENGINEERS. Large corporation with tremendous resources, facilities, experience and international reputation, desires competent refrigeration engineers experienced in designing, manufacturing and testing all types of commercial refrigeration equipment. This is an unusual opportunity for qualified men. Give experience and qualifications in replying. Box 1514, Air Conditioning & Refrigeration News.

THOROUGHLY EXPERIENCED man as installation and service supervisor. Commercial and industrial work only. Good future; steady work for right man. Pleasant working conditions with growing concern. High salary. STERLING REFRIGERATION CO., Paterson, N. J.

WANTED: REFRIGERATION ENGINEER to do design and development work on post war products. Experience in low temperature field preferred. Box 1519, Air Conditioning & Refrigeration News.

EXCEPTIONAL OPPORTUNITY. A nationally known midwest manufacturer of commercial refrigeration cabinets has an unusual opportunity for a well qualified individual with engineering ability and factory supervision experience. General knowledge woodworking, sheetmetal and refrigeration advantageous. Give complete information as to age, education, qualifications, history of past employment and references in first letter. Box 1520, Air Conditioning & Refrigeration News.

### POSITIONS WANTED

SALES ENGINEER: Married, 8 years' experience in export of air conditioning and commercial refrigeration. Desires connection with good firm, tactful, sales application minded, practical engineer. Capable of aiding in development of new and expanding on present items of air conditioning and refrigeration. Box 1509, Air Conditioning & Refrigeration News.

### EQUIPMENT WANTED

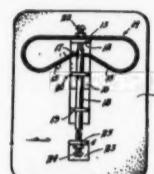
WILL PAY TOP PRICES for large condensing units with motors from 5 H.P. to 50 H.P. capacities. EVERLAST REFRIGERATION CORP., 444 Fourth Avenue, New York 16, N. Y.



## Patents (Cont.)

(Concluded from Page 28, Column 4) having a substantially vertically extending dust free gas outlet, within said primary separator, inner walls of said flow passage forming walls of said secondary separator, and means forming a passage connecting said skimming passage and said tangential inlet passage for conveying the skimmed off gas and dust into said secondary separator.

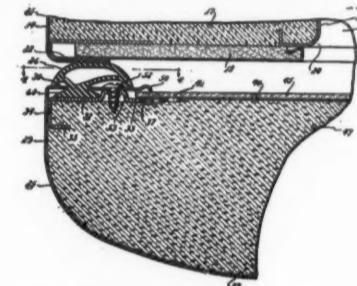
2,339,501. SNAP ACTION ELEMENT. Howard D. Matthews, Detroit, Mich., assignor to Minneapolis-Honeywell Regulator Co., Minneapolis, Minn., a corporation of Delaware. Application Aug. 3, 1942, Serial No. 453,354. 8 Claims. (Cl. 297—15).



1. A device of the character described comprising in combination, a bimetallic thermostatic strip having an intermediate portion and two end portions, said end portions being bent back upon themselves and located opposite each other, said end portions further being biased toward each other by reason of the inherent resiliency of the strip, and movable means located between said ends and forcing them apart thereby setting up stresses in said strip, said two ends deflecting in the same direction with a snap action upon changes in temperature.

2,339,566. REFRIGERATING APPARATUS. Martin J. Gouloose, Grand Rapids, Mich., assignor to Nash-Kelvinator Corp., Detroit, Mich., a corporation of Maryland. Application May 7, 1941, Serial No. 392,209. 3 Claims. (Cl. 20—35).

1. A door for a cabinet comprising sheet material to provide side walls with its marginal edge turned to extend inwardly, a reinforcing frame member extending longitudinally in engagement and secured to said side walls, straps joining diagonally opposite corners of said frame member, an insulating panel forming the inner side of said door, means for fric-



tionally holding the edges of said panel against said frame member to permit said edges to move relative to said frame member upon the expansion and contraction of said panel, and said means cooperatively securing with said inwardly turned marginal edge a peripherally extending door seal.

## Air Conditioning Aids Bouillon Production

NEW YORK CITY—The adoption of air conditioning as a vital production tool is helping to eliminate shutdowns in the American Kitchen Products Co. and is enabling them to maintain continuous and full production of bouillon cubes for the armed forces and lend lease.

Because of the presence of salt and other ingredients, bouillon cubes are highly hygroscopic (i.e. absorb a great amount of moisture) and have the tendency to adhere to the automatic compressing and wrapping machines. This problem has often caused delays and complete stoppages during the summer months and sometimes on humid winter days.

Engineers of Carrier Corp., when presented with the problem, prescribed a silica gel dehydrator which removes the moisture from the air and keeps the air clean as well as dry. Tests had shown that 80° F. and 30% relative humidity was the ideal combination of temperature and humidity for handling and compressing dehydrated bouillon powder—and the dehydrator and refrigeration compressor were installed to maintain these conditions.

The American Kitchen Products Co. has since reported that the manufacture of bouillon cubes now goes on uninterrupted in all weather.

## Muffy Cites Trend To Frozen Foods

(Continued from Page 1, Column 3) shelf is that children will have a lot of fun making the shelves go 'round, spilling bottles and foods."

Returning to the subject of frozen foods, Mr. Muffy said he was firm in his belief that their popularity would increase greatly after the war, aided by the inclusion of frozen food storage space in the household box.

One threat to the continued growth of the frozen foods industry after the war seen by Mr. Muffy was the possibility that new firms may enter the food processing field and not maintain the high standards of quality in foods and freezing process which the leaders in the business have established, thus souring the public on frozen foods in general.

Prospect that the public will do its own freezing of food on a large scale is not considered likely by Mr. Muffy.

"I am not sold on the idea that everyone will have his own garden and freeze the food he grows in his own freezer," he declared. "While the farmer may want a freezer to handle a hog, even he won't become a meat packer. Farmers, like the city dweller, will probably buy their frozen foods in quantity at the nearest market and store it in their refrigerator."

Another serious problem in connection with the frozen food industry is that of insuring that frozen foods reach the ultimate consumer in prime condition. This means, Mr. Muffy explained, that sufficiently low storage temperatures, considerably below 10° F., must be maintained in warehouses, delivery trucks, and the retailers' cabinets, while the household refrigerator's storage compartment must be limited to a maximum temperature of 10° F.

"Recently," he said, "a patent was granted on a label for frozen foods which will melt at 10° F. If the label has melted, don't buy it," he advised.

The cabinet of the future, besides not being circular, won't be all plastic, said Mr. Muffy, commenting on another popular idea of the postwar refrigerator. "Plastics will be used—in spots, but the greatest change in material utilized in cabinet construction will be the trend to aluminum. Aluminum will offer increasing competition to stainless steel," he predicted.

"Table top refrigerators are being talked about again, but I don't think they'll be popular," declared Mr. Muffy. "They never have been."

Drawers for storing food in tabletop models, while convenient perhaps, provide greatly increased heat leakage surface, Mr. Muffy pointed out.

At the suggestion of the A.S.R.E. members, Mr. Muffy described certain features of his own personal household refrigerator. His own unit has a frozen food storage compartment, but the most unusual innovation is the ice making apparatus.

A tank located in the top of Mr. Muffy's refrigerator holds water for freezing into ice. Within the tank is a plate which is in contact with the suction line at intervals. During the refrigerator's running cycle, ice about the size and shape of the outside third of a golf ball is formed on the plate at points of contact with the suction line. When the running cycle stops, the surrounding water melts slightly the ice pellets, which float to the top of the tank. The process is repeated each cycle.

It requires about 36 hours for each ice pellet to melt, Mr. Muffy said, but the machine is set to provide a

constant supply of about 10 to 15 pounds of ice.

While Mr. Muffy did not predict that every or even any refrigerator of the immediate future will have ice making equipment of a similar type, and while he admitted that he could not reveal details of what he and the manufacturers are actually planning, he did provide some food for thought along future refrigerator design by outlining a few of the answers to the question he has asked

hundreds of women: "If someone would offer you your ideal refrigerator, how would it differ from your present model?"

The comments Mr. Muffy has received most frequently, he said, were: "Emptying the drip pan is a nuisance."

"I forgot to defrost the machine."

"I forgot to reset the control after freezing or defrosting."

"Don't have enough ice for large parties."



LARGE SELECTION of PRIORITY and NON PRIORITY ITEMS  
DISPLAY CASES, REACH-INS, WALK-INS, DOUGH RETARDERS, BOTTLE COOLERS,  
VEGETABLE CASES, BEER EQUIPMENT.  
MANUFACTURERS OF ALL TYPES OF COMMERCIAL EQUIPMENT  
INQUIRE TODAY! DEPT. 102

**FOGEL REFRIGERATOR COMPANY** Since 1899  
Philadelphia, Penna.



★ Most commercial refrigeration men west of Omaha know this fellow. He is ED WARD, former Pacific Representative for Tyler and currently serving the company as Assistant to President in War Production. When the present job is done, he'll be seeing you with a post-war story on profit possibilities with Tyler that will ring the bell!

**TYLER REFRIGERATORS**



THE STANDARD-DICKERSON CORP.  
46-76 Oliver Street, Newark, N. J.

Originators of The Cross Fin Coil



Humi-Temp Forced Convection Units—  
Patented CROSS-FIN-COILS—Bar Tube Coils—Zinc Fused Steel Plate Coils—Disseminator Pans—Heat Exchangers—Evaporative Condensers—Instantaneous Water Coolers

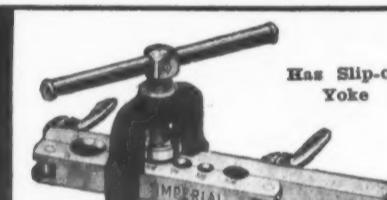
LARKIN COILS, Inc., 519 Memorial Dr., S.E., Atlanta, Ga.

**IMPERIAL**  
*Flaring Tools*

- built to conserve precious minutes
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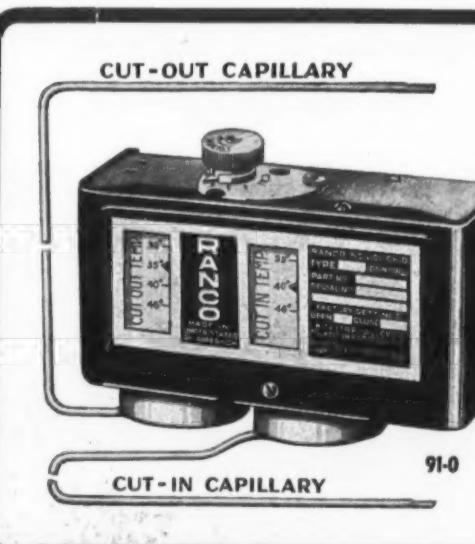
Imperial Flaring Tools are especially valuable under current conditions. They help speed up tubing connection work and they make joints that are tight and stay tight.

IMPERIAL BRASS MFG. CO., 565 S. Racine Ave., Chicago 7, Ill.



No. 195-F Flaring Tool. Flares 1/4", 5/16", 3/8", 1/2" and 5/8". O.D. soft copper, brass or aluminum tubing. Yoke is made so that it can be slipped over bar instantly without twisting or turning.

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Just as the Replacement Center is the source of fighting men to take the place of those relieved from active duty, similarly your Ranco Jobber is your Replacement Center for controls no longer fit for active service. Perhaps your Ranco Jobber will be unable to supply you with an exact replacement—the types available are necessarily limited at this time—but you will find one that is easily adaptable and are assured a precision instrument, sturdily made and accurate in operation. Adopt your Ranco Jobber as your control Replacement Center.

Ranco Inc.

COLUMBUS,  
OHIO

## 'Pooling' Agreement on Calls To Save Gas, Tires, and Man-Hours

(Concluded from Page 1, Column 4) a refrigeration and air conditioning business, employing upwards of 96 servicemen had ceased to do business due to manpower problems, Selective Service and other causes brought on by the war effort; and

WHEREAS, for the purpose of conserving motor equipment and loss of man hours labor, due to the distance they are required to travel at times to perform necessary services and for the interests of all establishments who are performing necessary services, the Refrigeration Contractors Assn. of Detroit, has authorized the forming of a pooling agreement;

NOW, THEREFORE, the parties hereto jointly and severally agree to pool their deliveries, transfer calls from one to another and to pool their pickup of parts at the wholesale houses in the following manner:

### Zoning of Districts:

The City of Detroit, is laid out into six (6) zones for the purpose of this agreement; said zones are described as follows: (herein follows a description of the zones, giving street boundaries).

### Operating Committee:

The affairs and operation of this pooling agreement shall be managed and controlled by a committee of five members of the industry. The names and addresses of such members are as follows:

Raymond M. Shock has been appointed as attorney and manager operating said pool. The address established by said committee is 534-6 Dime Bldg., Detroit. Meetings shall be called by the chairman or manager at any time it becomes necessary to settle disputes between members or to take other action for the operation of said pool. It is further understood that any members of this committee may be replaced by a majority vote of all members of the pool.

### Establishment of Pools Within This Pool:

The members of this pool in each section, whenever possible or feasible, agree to pool between themselves on the picking up of parts at the wholesale houses and the delivery and picking up of refrigerators in order that full loads will be obtained on each trip. Schedules of charges are hereby established for the cost of pick-up or delivery of refrigerators from one zone to another.

### Transfer of Calls:

The parties hereto are each furnished a list of all members of this pool giving his name, address, telephone number and zone in which he is located and transfer of calls is to be made from one zone to servicemen in another zone, in order to conserve mileage, time and equipment of the parties hereto.

### Designated Time for Delivery Into Zones:

The parties hereto agree to make pickups, service calls and deliver in the designated zones created in this agreement as follows:

Zone 1	Monday
Zone 2	Tuesday
Zone 3	Wednesday
Zone 4	Thursday
Zone 5	Friday
Zone 6	Saturday

In other words, all parties hereto are to hold their service calls for performing such services on the days designated by this agreement, except emergency breakdowns, which must be taken care of at once; it being understood that the parties to this agreement who do not have a full load to pick up and deliver will pool their pickups and deliveries with other members of their district.

### Other Servicemen May Join in This Agreement:

Provision is hereby made in this agreement for other refrigeration and air conditioning servicemen to join in this pooling plan under the same conditions as indicated herein and with the approval of other members of this pooling agreement.

### Abolishment of Free Estimates:

Free estimates having been abolished by the refrigeration and air conditioning servicemen since March, 1943, at the request of the Office of

### Cooperation of All Servicemen Necessary:

One of the purposes of this agreement is to promote cooperation of all independent servicemen and places of business performing such services in distributing calls to one another out of their respective zones and that a record shall be kept of all transfer of calls made by each contractor and reports made to the Office of the Pooling Committee at the end of each month.

### Factory Servicemen on Guarantees:

The parties further agree to group calls by not going to outlying zones each day, an exception being made where factory servicemen taking care of guarantees on a contract basis at times will be obliged to drive into other zones for the purpose of performing services.

to save time and expense in performing such services.

### Servicemen Stationed in Outlying Territories:

It is further understood and agreed that the larger contractors who have servicemen in outlying zones from their places of business who perform services in certain districts, order the employee to report at the main office twice a week instead of every day.

### When Servicemen May Make Daily Calls:

It is further understood and agreed between the parties hereto that servicemen may make calls, pickups and deliveries and render services daily within their own zone, in accordance with location shown on map or within a radius of five miles from their shops.

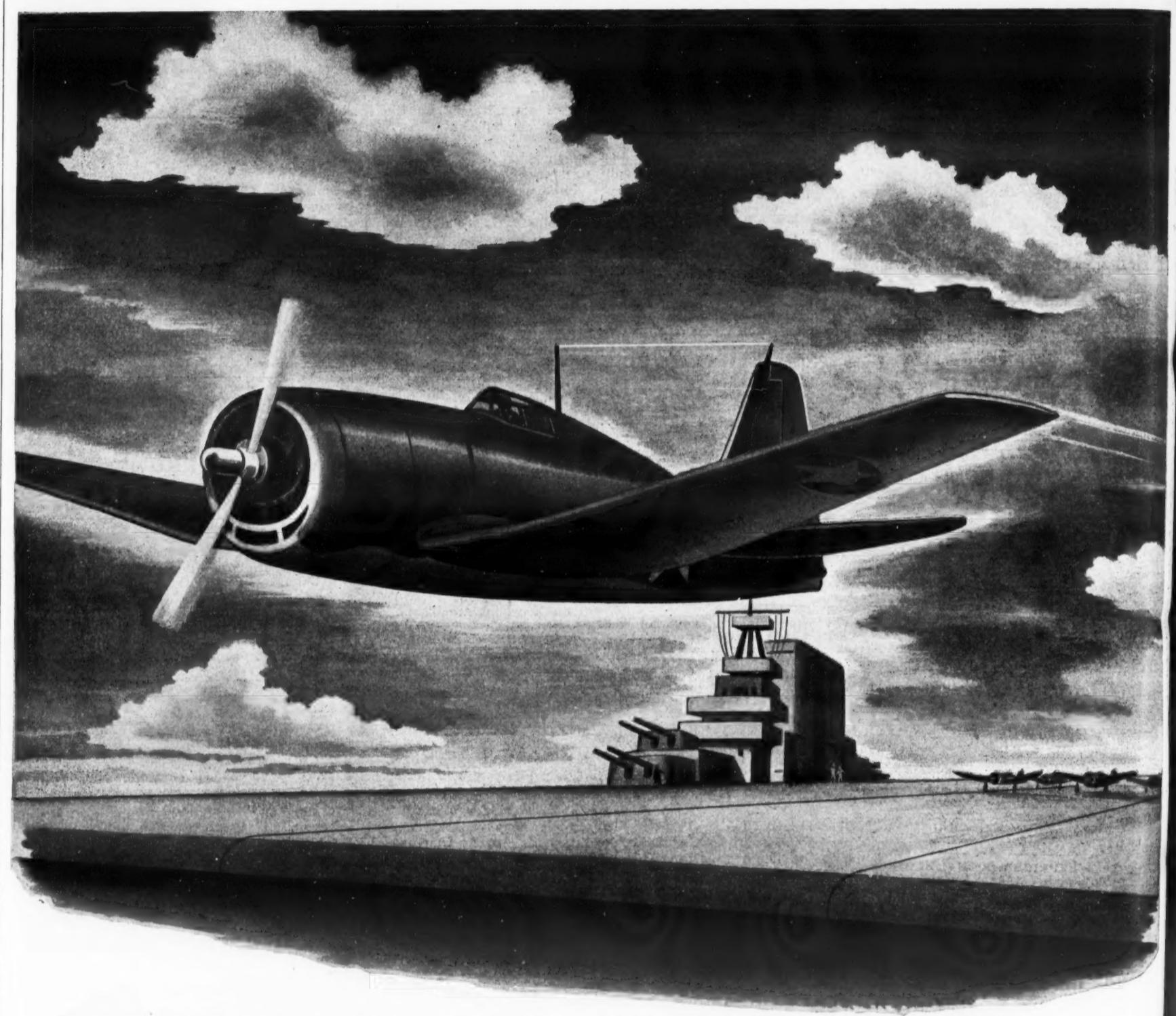
### Termination of Pooling Agreement:

It is agreed between the parties hereto that this pooling agreement shall operate for the duration of the war and six months thereafter or may be cancelled at any other time upon receiving authority from the Office of Defense Transportation.

### O.D.T. and O.P.A. Orders And Regulations:

This agreement in no way supersedes or changes any orders or regulations of the Office of Defense Transportation or Office of Price Administration, now in force and effect insofar as the parties hereto are concerned.

The parties hereto agree that this instrument represents a voluntary and clear understanding of all parties fully and completely.



## FIGHTING MISSION

The record of our airmen . . . consistent winners . . . traces to better men, better training, better planes. To be able to fly higher . . . faster . . . then to dive and strike . . . spells VICTORY. The Bush Intercooler has contributed higher critical altitude . . . supplied superior speed. It also has contributed to pilot morale. To business poised

to strike . . . and strike hard . . . for post-war business this experience in the heat transfer field will be invaluable. Business, too, awaits a fighting mission and these new techniques can help . . . with better, faster production and improved employee morale. BUY WAR BONDS.

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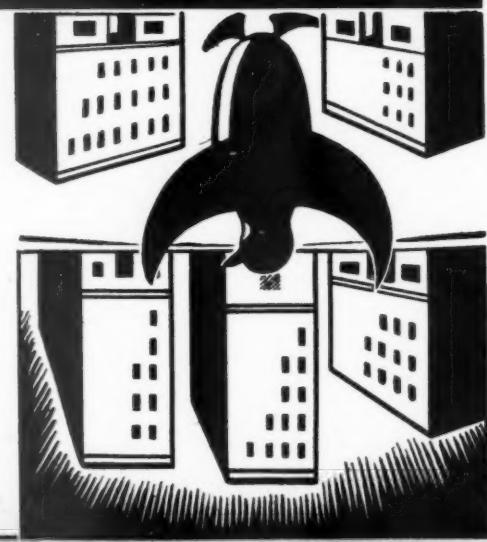
HEAT TRANSFER PRODUCTS

BUSI

PENGUIN PETE

If only 200,000 of the new homes built yearly are equipped with  
year-round air conditioning the volume will total \$200,000,000.  
There's a figure to ponder . . . and here's another. Out of the  
more than 500,000 retail stores and thousands of restaurants, hotels  
and institutions which will need frozen food storage cabinets after  
the war only about 25,000 now have them . . . what a market!

Chicago.



A TRIUMPHANT TOMORROW